# PRESIDIO DEL TUBAC MASTER PLAN

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A MASTER'S REPORT SUBMITTED TO THE FACULTY OF THE
COLLEGE OF ARCHITECTURE, PLANNING, AND LANDSCAPE ARCHITECTURE

IN PARTIAL FULFILLMENT OF THE REQUREMENTS FOR THE DEGREE OF
MASTER OF LANDSCAPE ARCHITECTURE

IN THE GRADUATE COLLEGE OF
THE UNIVERSITY OF ARIZONA

2014

# ACKNOWLEDGEMENTS

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**I would like to thank the kindness, patience, and generosity of time and spirit of my committee members in guiding me through the completion of this Master's Report. I would like to thank my committee chair, Ron Stoltz, for having confidence in my abilities to finish this report in a shortened time frame and for his encouragement to always keep moving forward. I would like to thank Margaret Livingston for the stringent timelines, which always kept me on track, as well as for her impeccable editing skills. And I would like to thank Brooks Jeffery for his constant encouragement towards scholarship and consideration, and for always pushing me to be just a little bit better and to do just a little bit more.**

**I would like to thank Shaw Kinsey, director of the Tubac Presidio State Park, for his constant encouragement and willingness to answer questions and facilitate visits. His single-minded dedication to the continued Tubac Presidio State Park is a testament to his character and an encouragement to do the same.**

**I would like to thank my classmates, for listening to all of my ideas and presentations, and for offering advice and feedback that only strengthened this project. I'd also like to thank all of those formed classmates who have gone out of their way to offer support, help, and advice, even after they had graduated out of the program.**

**Finally, I would like to thank my family, without whom none of this would be possible.**

# ABSTRACT

Tubac Presidio State Historic Park has the unique distinction of being the first state park in Arizona. It also firmly sits within the varied cultural history of southern Arizona, along the De Anza trail and is a part of the mission system in the Santa Cruz River Valley. The Presidio San Ignacio de Tubac was established in 1752, and was the first European settlement in what later became the state of Arizona. It is one of only three presidios in the state of Arizona, and is the only one that can be easily visited. There are a number of structures within the park that are placed on the National Register of Historic Places. The park itself has suffered under budget cuts from the State of Arizona, and recently faced being shut down. An intrepid group of volunteers stepped forward and manages the day-to-day activities of the park, while fundraising for improvements and other capital costs. Because of the budget cuts, and ensuing issues, the park suffers from a lack of attention, and poor visitor experience. This project will propose a master plan for development within the park that will focus on the visitor's experience, as well as phasing strategies for eventual implementation of the plan. This plan will specifically focus on large-scale issues, such as site circulation, grading and drainage, and interpretive landscape design. Appropriate and interpretive design will help communicate the significance of this area in the history of Arizona, as well as the development of the Southwest. This site also provides an opportunity to display native and appropriate landscape design for this region , and educating other visitors in the uniqueness of the natural habitat of the upper Sonoran desert. This project will also illustrate signage and other interpretive elements to address the challenge of clearly communicating the importance of a historic site that is not necessarily highly visible in the site alone.


MINES, MINERS AND THEIR COMMUNITIES
MINAS, MINEROS, Y SUS COMUNIDADES
June 1 – July 31, 2014
TOYAC PRESIDIO STATE HISTORIC PARK

# TABLE OF CONTENTS

# INTRODUCTION

# BACKGROUND

Tubac Presidio State Park is in the middle of a profound shift in purpose. Originally founded as the first state park in Arizona, it celebrates the history of the state's first European settlement and the history associated with it.

Budget cuts in 2009 threatened to shutter the whole park, until a volunteer ground, the Friends of Tubac Presidio State Park, stood up and assumed the day-to-day management of the park, as well as the financial aspects of the park. This new era of Tubac Presidio State Park has seen the development of the park not just as a static monument to a history long past, but instead also as a cross-cultural center that looks forward to the future in this melting pot of a region.

This proposed Master Plan seeks to help the park in its new mission, addressing issues of circulation, microclimate, interpretation, and water harvesting will provide the park the opportunity to better interpret its cultural heritage, provoke the curiosity of its visitors, and allow them to fully experience the park comfortably, and set an example with native plantings and water harvesting, all intended to educate but also to provide the visitor with a comfortable and memorable experience.

This proposed Master Plan may also be an example for other state and local historic parks, and how to combine interpretation and environmental design, while re-programming space to accommodate for a more dynamic sequence of events. The Tubac Presidio State Park's goal is to bring people back again and again, and this proposed Master Plan is intended to accommodate that goal.

How can a preserved historic site go beyond merely preserving history to presenting it? How can the same site expand cultural and educational opportunities in arenas beyond just the historic to providing an ongoing engaging, relevant, and dynamic experience?

In order to provide a designed Master Plan that accomplishes all of these goals, research was undertaken in the following areas: interpretive design; heritage gardens; small park design and maintenance; water harvesting; native plants; and cultural and historic park design, as well as the history of Tubac. This research led to a set of guidelines that were to be implemented to achieve a successful design in each of these areas of interest. These principles were then applied to case studies near and far to determine what works and what doesn't in these types of designed spaces. Throughout this process, a final set of design guidelines can be ascertained, which combined with the site analysis and general site considerations, can give form to the proposed Master Plan.

## Site Parameters

The site in question is that of the Tubac Presidio State Park, located in Tubac, Arizona, along the Santa Cruz River and De Anza National Historic Trail. It is located approximately 20 miles north of Nogales and the international border, and approximately 45 miles south of Tucson along Interstate 19. The park contains the remnants of the 1776 Spanish presidio (or fort) that was located on this site, making it the first permanent European settlement in Arizona. It contains several other locally important historic buildings that are listed on the National Register. The park also serves as an entry point to the De Anza Historic Trail, which runs along the historic route south to the Mexican Border and north, eventually as far as San Francisco. This park can lay claim to a number of superlatives, including the first permanent European settlement in Arizona, the first printing press in Arizona, and the best preserved Spanish presidio in Arizona. The park's borders are delineated by a low, concrete stucco wall that surrounds the site and sets it apart from the rest of the village.

The volunteer coalition of the park had ideas about what might be implemented to improve the overall visitor experience at the park. Some of these ideas had already been implemented by various groups and individual volunteers, including a rehabilitated entry patio, kitchen garden, and mission garden demonstration area. This master plan seeks to include those renovations while incorporating them into an updated Master Plan. Programming was also devised in conjunction with the volunteer groups, as well as the Park itself.

The park itself has been cobbled together over the course of many years, starting with the original Presidio excavation area, and adding buildings and spaces as they came available to the market. This has led to a park that is made of disparate pieces, without a cohesive vision or story. This site has been master-planned once or twice, and the legacy of those plans was still evident in the park. This could be considered a constraint; however, the opportunity to improve upon an existing plan is always an appreciated one. The underlying archaeological features posed a potential problem, in terms of not disturbing the site or other potential impacts, as the fact that the archaeological remains and other buildings on the site are largely constructed of adobe, a highly erosive material that is especially susceptible to basal erosion from poorly drained surface water. On-site drainage is poor, potentially eroding existing historic adobe structures or other areas, as water is being directed into the corners and offsite. Most major drainageways were adjacent to structures or populated areas of the park; however, there is a great opportunity to harvest this rainwater to use for on-site irrigation. There is also a tremendous opportunity to show off native plants to visitors, especially those that reveal their beauty during peak visitor season from January to March.

# RESEARCH

## Research Question

How can a preserved historic site go beyond merely preserving history to presenting it? How can the same site expand cultural and educational opportunities in arenas beyond just the historic to providing an ongoing engaging, relevant, and dynamic experience?

## Goals and Objectives

Goal: To better interpret the history of the site for visitors.
Objective: Provide effective interpretive design and look beyond the obvious areas of interpretation to include more cultural and environmental history of the area, instead of just focusing on the narrow historic slice of the Presidio.

Goal: To provide educational experiences that expand beyond the historic and cultural context.
Objective: Provide examples of water harvesting, native plantings, and edible desert-appropriate plants as demonstration for best practices when gardening in the desert.

Goal: Offer a more comfortable, relaxing and engaging experience for visitors.
Objective: Provide better and more pathways, more exhibit design along the pathways, and consider microclimate and shade for visitors, while respecting accessibility and the advanced age of many of the park visitors.

Goal: Create a realistic and manageable master plan for the park, as it is managed largely by visitors.
Objective: Understand and implement small park management strategies, and facilitate volunteer efforts from park volunteers and beyond, so the park can continue to live and function within its means.

Goal: Create a new identity for the park as a center for cultural exchange.
Objective: Create multi-use areas that accommodate different events and users, and allow for dynamic park programming that can take advantage of the different spaces to create an expanded concept of a historical park.

## Methodology

The first step in the undertaking of this project was to meet with the Tubac Presidio State Park to determine their goals and challenges in the visioning of the overall master plan for the park. An initial survey of the on-site conditions provided a baseline for the literature investigation that was to follow.

Next, an extensive investigation into contemporary and classic writings on the various topics that relate to the conditions and challenges of the site. Journal articles, books, and essays were consulted on several relevant topics of investigation: interpretive design; small park design and maintenance; heritage gardens; and cultural and historic parks. Reviewing this range of sources provided a framework for detailed understanding and analysis of case reviews, ultimately leading to a framework on which the ultimate design can be hung.

Case reviews provide an opportunity to analyze sites based on the theoretical framework provided by the literature reviews. Sites were chosen based on their proximity or relevance to specific topics of investigation found in the literature review, but were analyzed for their strengths and weaknesses independently. These case reviews were analyzed for their strength and weaknesses as a project whole, and also for the overall design implications that could be applicable to the final site design.

Site analysis was undertaken both with a digital investigation and numerous in-person site visits. The most important site attributes to the overall design outcome were analyzed and diagrammed. A synthesis of these site factors was taken into consideration for the next phase of the project: conceptual development. Several interactions of a design were considered during concept development. The strengths and weaknesses of each concept were analyzed , and the four concepts were then synthesized into one final concept, which addresses many of the weaknesses of the previous design iterations while capitalizing on their strengths.
From the final conceptual design, a site plan was developed in more detail, fleshing out the specific focus areas of the site in more detail and depth. Focus areas were determined from the final site plan and explored in more detail, chosen for their variety and for the level at which they addressed the existing site conditions. A detailed planting plan was created for each of these focus areas to aid in the future implementation by the park. Additionally, site-wide strategies were proposed to address the unique challenges and conditions of the site, including stormwater management, volunteer engagement, and implementation of a native plant palette. Suggestions were proposed for specific areas and interventions throughout the site as part of an overall phasing and implementation strategy.


INK SLAB
Chase
Imposing Stone

# HISTORY OF TUBAC

The history and fate of Tubac is closely linked with the fate and fortunes of the state of Arizona. Founded in 1752 as the first permanent European settlement in the state of Arizona, the Tubac Presidio of San Ignacio was originally established as a response to the Pima Revolt of 1751 and the need for protection for the ever-increasing number of settlers in this area of southern Arizona. Tubac is a place of many superlatives, and combined with a boom-and-bust cycle repeated over the centuries; the history of Tubac goes back centuries further than the founding of a simple Spanish fort.

## The Santa Cruz | River of the Holy Cross

The story of Tubac's founding is found in its proximity to the Santa Cruz River. Born in Arizona, in the southern mountain watersheds near Sonoita, the river passes through Mexico before making its way back south into the United States. The Santa Cruz River was a key passageway for Spanish explorers seeking to first explore what was then called the Pimería Alta, or the northern range of Spain's territorial conquest that was inhabited by Pima Indians. A ribbon of life in an otherwise desolate, hot, and dry desert, the presence of the Santa Cruz River defines the narrative of human occupation in southern Arizona. Owing to the underlying soils and bedrock, the river itself over its entire course is generally underground, with perhaps a rivulet of water here and there, until the monsoon rains cause the river to overflow its banks. The only indication of water is often the surrounding dense, lush, riparian habitat; a cool and shady juxtaposition to the desert heat. However, there are places where the course of the river is thrust to the surface, where the bedrock lies just below, and there the promise of the river comes alive with resplendent riparian bosques and the trills of thousands of birds that alight here during their annual migration. Human occupation has always depended on available natural resources, and here, where the Santa Cruz River bubbles up to the surface year-round, there could be no more hospitable place to be found in the desert.

## Prehistoric Occupation

The early flowing water of the Santa Cruz River was appealing to all kinds of life forms. In the early Pleistocene, this area was home to North American mammoths, bison, camels, horses, and other now-extinct megafauna (Lamberton 2011). Surely they were attracted to the perennial flow of water and the dense vegetation, which would provide a veritable feast for herbivores. This megafauna went extinct over 10,000 years ago, leaving plenty of room for prehistoric peoples to make this place their home. People had farmed the Santa Cruz for over 3,000 years before the Spanish arrived at its banks (Lamberton 2011), utilizing its fertile alluvial soils deposited by thousands of years of seasonal flooding, as well as developing a sophisticated system of irrigation channels that brought water from the banks of the Santa Cruz to the agricultural fields below.

These prehistoric people, generally referred to as the Hohokam, grew crops common to the area, especially the southwest triumvirate: corn, beans, and squash, all adapted for the conditions of the desert. Some cotton was brought up from Central America sometime during this pre-Columbian period. In addition to agricultural harvests, the Hohokam were very good at harvesting and utilizing wild foods, gathering mesquite pods, cholla fruits, and other desert plants to round out their diets. The canals dug by the Hohokam are the oldest known in North America (Lamberton 2011) and can still be seen today in some areas. When the Spanish arrived, instead of trying to superimpose their own system on the river, they took these prehistoric canals and improved upon them to create their own system of irrigation canals, called asequias.

These prehistoric Hohokam have disappeared from the Santa Cruz River valley, but their descendants can be found in the neighboring O'odham peoples, who too have a long and storied history in this area, as we shall soon see. The name Hohokam comes from the modern Pima word meaning "ancient ones" or "those who have gone" (Trimble 1977). The modern O'odham or "the people" as they call themselves are composed of the Pima, Papago, and Sobaipuri tribes, as well as the Tohono O'odham, as they are commonly referred to today.

## The Spanish Period

The early Spanish explorers were conquistadores, who, driven out of Africa by Portugal in their quest for riches, and lured by stories of Eldorado, ventured to the new world in search of gold and other treasure. These early conquistadores were more interested in the treasure they sought than the people they found inhabiting the New World. Francisco Coronado was the most well-known of these original

Spanish conquistadores, coming to New Spain in 1540 and eventually exploring the New World from California east to Kansas, Texas and Oklahoma (Trimble 1977) as well as everywhere in between. Coronado encountered native North Americans in Arizona and fought with them, the first documented clash between people in the United States (Trimble 1977). Eventually Coronado and every other Spanish explorer were recalled to Spain in 1542, save for 3 priests who chose to remain and were never heard from again (Trimble 1977). Onate returned to the United States in 1595 with 400 colonists and the first permanent heads of cattle and settled near El Paso, but returned to Spain in 1607, marking the end of the period of the Spanish conquistadores in the New World (Trimble 1977).

The next Spaniards to set foot in the new world came with a different mission: converting the native inhabitants to Catholicism, and eventually collecting taxes and other profits from them. The entire area beyond the Santa Cruz River valley was then known as the Pimeria Alta. It was so named by the Spanish missionaries, as this was the land of the Pima Indians, on the north edge of Spain's territory in the New World. Jesuits came to this area in the 1560s, but didn't establish a permanent mission until 1591, when they settled San Felipe, in what is now Sinaloa (Dunmire 2004). From there, the Jesuits expanded ever northward, establishing cabesas (main churches) and visitas (small ranches where services were offered weekly) as they went. The most well-known of these travelling Jesuits today is Father Kino.

### Father Kino

Padre Eusebio Kino first came to the Pimeria Alta in 1687, where he established his first mission at Dolores, Sonora in 1687 (Trimble 1977). He first journeyed into what is now Arizona in 1691, making it as far north as Bac before returning to the mission at Dolores. He made many more journeys into southern Arizona, setting down the roots of missions everywhere he journeyed, eventually founding over 29 missions and 73 visitas in the Pimeria Alta, as well as travelling an estimated 75,000 miles (Trimble 1977). When he was young man he experienced a serious illness and was given up for dead, but somehow miraculously survived, attributing the miracle to his patron saint, Francis Xavier (Trimble 1977). In thanks, he dedicated his life to missionary work, as well as adding the name of Saint Francis to his own. As a young man in his native northern Italy, Eusebio Kino had studied agriculture, viticulture, and animal husbandry, and he brought those interests to his missionary work in the New World (Dunmire 2004).

As the padres traveled into the New World, they sought out land that would be suitable for European crops. Often times this coincided with where people were already living; the settlements existed, and the church simply moved in with them (Trimble 1977). Father Kino himself traveled with seeds and cuttings, making the establishment of the garden his first priority (Dunmire 2004) in whatever permanent settlement he established. Although he did not settle in Tubac, he did found a mission just a few miles upriver at Tumacacori. For Father Kino, the gardens were an important part of his missionary work. He saw the native inhabitants as struggling to produce enough food (which may or may not have been true), but he believed that it would be easier to convert them to Catholicism if they saw that their new life also came with greater abundance (Trimble 1977). At the Tumacacori mission (among others) the locals lived within the mission grounds and participated in the agricultural work in return for a share of the yields, all of the while operating under the watchful guidance of the Jesuits. Kino was much loved by the local inhabitants, as he was a gentle man and did not exploit their labor, and did not mistreat anyone. Kino also brought horses, cattle, and other livestock to the area, the legacy of which lives on in cattle ranching operations all over southern Arizona today, as well as throughout the entirety of North America. As Marshall Trimble remarks, "perhaps Kino's greatest legacy to the natives was the bringing of fruit trees, crops, vegetables, sheep, mules, and cattle into Arizona. The padre was the area's first cattle-baron" (1977:77). Kino died in 1971 in Magdelena, in current-day Mexico, dedicating a new mission. He had dedicated his whole life to his missionary work in the New World, right until the very end.

The Jesuits were expelled from the New World in 1767, after King Carlos III of Spain became fearful of their influence in the New World (Trimble 1977). The mission at Tumacacori thrived for a time after the Jesuits were expelled, replaced soon after by Franciscan missionaries. Tumacacori was constantly under siege by bands of Apache, who were not agriculturalists and preferred to conduct raids. The Apache threat to the mission and the surrounding area partly led to the founding of the Tubac Presidio of San Ignacio in 1752, but what brought the issue to the forefront was the Pima Revolt of 1751.

### The Pima Revolt

The Pima Revolt was largely a response of the native inhabitants to the occupation by the Spaniards. Father Kino was well known for being a kind and gentle man, but this was the exception to the rule of the treatment by most Spanish explorers. There were other problems, in that the native inhabitants were reluctant to give up their nomadic lifestyles; they disliked the work that was forced upon them by the Spanish and the ways that they were punished if they did not perform the work or did not perform it correctly; the language gap and feeling of racial superiority on the part of the Spanish became an issue; and most of all, most of the native inhabitants did not have elected or clearly defined leadership positions, so it was not possible to negotiate with or surrender to the Spanish as a whole (Trimble 1977). The Spanish had also taken away the fertile valley agricultural lands for the missions from the original inhabitants, forcing them to work at the missions to reap the benefits of the fertile agricultural soil that had previously been theirs. All of these issues caused resentment to grow among the local inhabitants, and combined with Spain's financial problems and dwindling manpower in the region led to an explosive conclusion. More than 100 men, comprised of varying tribes throughout the Pimeria Alta, massacred more than 100 settlers near Spanish encampments. A peace was eventually negotiated, and the Presidio at San Ignacio del Tubac was founded to control the Pimas, as well as several other presidios throughout the Pimeria Alta.

Historic flow of the Santa Cruz River.

### Founding of the Presidio del Tubac

The first mention of the site of Tubac in the history books was in 1726, when Jesuit missionary Father Augustin de Campos mentions baptizing children there (Wormser, 1975). There is some debate about the provenance of the name "Tubac", but one compelling story tells it thusly: In the Tohono O'odham language, the place was called "tschoowaka", or roughly translated, "rotten". A Tohono O'odham village located at present-day Tubac was attacked by enemy raiders, who were promptly killed and left unburied, so it seems like the accurate translation for the word Tubac may in fact be closer to "the place where some enemies rotted" (Lamberton 2011).

After the Pima Revolt in 1751, Governor Ortiz Parilla established a presidio at Tubac with 50 soldiers under the command of Juan Tomas Belderrain. The soldiers were encouraged to bring their families with them, and Tubac became a permanent settlement, with women and children. Belderrain was killed by Indians shortly thereafter, and command was then taken of the Presidio by Juan Bautista de Anza, who held the post for over 15 years (Lamberton, 2011).

### Juan Bautista de Anza

Juan Bautista de Anza was of Basque descent, born in the Pimeria Alta into a famous family of soldiers. His father was killed by Apaches when he was young. De Anza today is most well-known for the National Historic Trail that bears his

name, celebrating his journey to the founding of San Francisco. What is not well known is that these expeditions were launched from the Tubac Presidio.

In 1773, the Viceroy of New Spain, Antonio María de Bucareli y Ursúa granted Juan Bautista de Anza permission to travel to the existing missions of California and then to travel northward, in search of suitable places to establish new missions (Wormser 1975). De Anza was the commander of the Tubac Presidio at the time of his departure, and personally financed the journey himself (Lamberton 2011). De Anza brought with him Jose Joaquin Moraga, and together they went north to California in 1774, leaving Tubac in the hands of the settlers (Wormser 1975). This expedition led to the founding of San Francisco, and they returned to Tubac later that year to gather settlers to take with them to found a new colony at this site of San Francisco. Upon their return from their successful journey to California, they then travelled to Mexico City to seek settlers. While there de Anza was promoted to Lt. Colonel (Wormser, 1975). He was also given financing in the form of mules, horses, cattle, and 2 year's pay as an enticement for new settlers to travel to the new colony.

The settlers recruited from Mexico City were joined by more prospects from San Felipe in Sinaloa, as well as any settlers drawn from Tubac, and departed from the Presidio of Tubac on October 23rd, 1775 (Wormser 1975). The party consisted of 177 settlers from Sonora, 63 from Tubac, and 114 children (including 4 born en route). Amazingly, the party sustained only one fatality, a woman who died in childbirth near the present-day Canoa Ranch, whom is buried at the mission at San Xavier del Bac. The journey to San Francisco had emptied Tubac of most of its occupants. Coupled with the increased threat from the Apache raiders, most settlers who remained moved onto to safer areas, and the presidio itself was moved to Tucson in 1776.

### Post-Presidio Life at Tubac

Life was difficult for those few who remained in Tubac. Apache raids intensified with the soldiers gone; one year, the raiders made off with all of the cattle and corn in town (Lamberton 2011). Many people moved near the fort at Yuma Crossing to escape the raids (Wormser 1975). The Jesuits were expelled in 1827 due to controversy between land owners and the Church (Trimble 1977), and their property in Tubac had been auctioned off, while the adobe buildings fell to ruins (Wormser 1975). Between 1821 and 1835 (but largely after 1930) more than 100 mines, settlements and ranches were wiped out, and 5,000 people were killed in the Tubac area (Trimble 1977).

In 1871, Tubac received an attachment of the San Rafael Company (Wormser 1975) to help protect the few settlers that remained, and to combat the Apache raids. This attachment was compromised of Spanish officers and Piman soldiers (who were eventually replaced with Yuman soldiers from Sonora). In addition to defending the fort and its nearby settlers, the company rebuilt the adobe buildings located around the presidio that had been originally occupied by Indians (Wormser 1975). In 1789, the commander of the presidio, Lt. Nicolás de la Errán

Tubac.

gave the first Spanish land grant to Toribo Otero (the land which is presently the Tubac Golf Resort) and helped kick off a new era in Tubac history, one of renewed exploitation of the local natural resources; namely, land, and minerals.

### Ranching, Mining, and Land Grabs

Tubac eventually became the center focus area for mining operations taking place in the nearby Santa Rita and Arivaca Mountains (Wormser 1975). Don Toribo de Otero put the 400 acres of his land grant to good use, planting orchards, and served his community by serving in the military (Lamberton 2011). These mining claims were not originally worked because of the ever-present threat of Apache raids in the area.

Tubac also became the victim of political upheaval in the area of the present-day border, with the War for Mexican Independence and the declining influence of Spain on the region. Nothing in Tubac felt finalized until the 1848 Treaty of Guadalupe Hidalgo, which gave the US all land north of the Gila River, and the 1853 Gadsen Purchase, which gave Arizona the form that we see today. Now that Tubac was in the United States and there was a safe route back east (Wormser 1975), the gold rush was on.

### Gold is Discovered

Gold had drawn settlers away from Tubac in the 1840s. The promise of gold in California proved too much of a temptation, and the increased Apache threat was a significant disincentive to stay. The Gadsen purchase changed the direction of the fortune-seekers, sending them back to the Territory. Tubac was reoccupied by 1850, and by 1853, there were even about100 friendly Apaches who had settled in

the area (Wormser 1975). In 1854, Charles Poston and Herman Ehrenberg sailed from San Francisco to the Sea of Cortez, then travelling overland, through Alamos, drawn by Tubac's potential. Together they formed the Sonora Exploring and Mining Company, with mining interests in the Sopoi, the Santa Ritas, and Arivaca. Poston and Ehrenberg made Tubac the headquarters of their new mining operation, and fixed up some of the old presidio buildings to house their venture. Poston, known as the "Father of Arizona" quickly became a town leader, performing marriages, baptisms, and divorces, as he was legally authorized to do so as county clerk, but the church put a quick stop to that (Wormser 1975). Poston clearly enjoyed his tenure in Arizona; it was said that "Poston spent much of his leisure time sitting in one of the natural pools of water in the Santa Cruz River, reading newspapers, smoking Mexican cigars, and pondering the imponderables" (Trimble 1977:215).

Business was good for a time; Poston's mines made $3,000 a day in silver, and continued to boom until 1861 when federal troops were withdrawn from the area, and the Apache took over (Trimble 1977). Poston and Ehrenberg's mining company eventually failed; they reorganized it as the Santa Rita Mining Company, and opened the famed Heintzelman mine in Arivaca. Rafael Pumpelly and Samuel Colt (of the firearm fame) came to have interests in the Santa Rita Mining Company. Eventually William Wrightson replaced Poston. Wrightson had brought a printing press with him, and founded Arizona's first newspaper, The Weekly Arizonan, in Tubac in 1859.This printing press is still in working condition and can be seen in the museum at the Tubac Presidio State Park.

Artist's rendering of the Tubac Presidio.

### Lawlessness Prevails

During this time, Tubac was a part of Dona Ana County, whose county seat was Mesilla, located near present-day Las Cruces, New Mexico (Wormser 1975). Enforcement of the law was difficult, given the distance and general inaccessibility of this new Territory, and Arizona was generally a lawless place. Apache raids had declined for a time, due to a policy of appeasement (consisting largely of guns and liquor) but this period of peace was not to last for long. The Daily Arizonan reported that between 1857-1861, 111 Americans and 57 Mexicans had died violent deaths in Tubac; this when the average population of Tubac was between 700 and 800 at a time (Wormser 1975). The famed Apache leaders, Cochise and Mangas Coloradas, reigned over the Apache raids. The increased raids came to be too much for the town to bear, and Tubac was abandoned, yet again. Adobe buildings in Tubac crumbled, and the Heintzelman and Santa Rita mines were abandoned. Charles Poston returned to Tubac in 1864 with J. Ross Browne, who reported that there was not a soul between Tubac and Tucson save the crumbling ruins (Wormser 1975).

### Ft. Crittenden

Tubac was not abandoned for long. People once again returned in 1865, after John N. Goodwin, the 1st Territorial Governor, ordered a Mexican garrison stationed at the Presidio, which was then called Ft. Crittenden. This resurgence was short-lived, as the troops were withdrawn in 1868. The withdrawal had a domino effect, with the Arizona Mining Company then calling it quits. Apache raids once again increased. After the Camp Grant Massacre in 1871, General George Crook was brought in to solve the "Indian Problem", but his only focus was on the Chiracahua Apaches, and so the raids went on (Wormser 1975). People came, seeking their fortunes in Tubac, but left disappointed shortly thereafter. Still, some settlers remained. By the late 1870s life went on, with kids in the school (which can still be seen in the park today), and the area where the presidio once stood full of adobe ruins.

### Recovery Period

In 1882, the official town papers were issued for Tubac; the townsite was surveyed and laid out in 58 blocks (Wormser 1975). The town did not grow much, due to Apache raids, and T. Lillie Mercer, a local merchant, organized a volunteer cavalry called the Tubac Scouts, of which he was captain, in order to defend the town against these raids (Wormser 1975). What happened then?

By the early 1900s, Tubac had a justice of the peace, a constable, a schoolhouse with several teachers, and 443 people, according to the 1910 census (Wormser 1975). There was a general store, and mass was held by visiting priests from Nogales. The Southern Pacific Railroad reached Tubac in 1910 (Wormser 1975), and with it came the outside world. Arizona was admitted to the Union in 1912, and officially became a state. Some Tubac settlers had a setback in 1914, when the Supreme Court handed down a decision in the infamous case of the Baca Float, in which the heirs to the original land holdings in New Mexico were allowed to select an equal quantity of land elsewhere. They chose a piece of land straddling the Santa Cruz River, encompassing Tubac and its extents. The Supreme Court found for the Baca claimants, and forced some long-time Tubac settlers off of their land (Wormser 1975).

Tubac flourished in the 1920s, with two trains a day bringing mail, and more students attending the local school. In the 1930's, the main economic driver became gentlemen's ranches, generally owned by Easterners, who were drawn by the unparalleled landscape and idea of the western lifestyle. By 1948, only 3 Tubac residents actually owned their own farms (Wormser 1975), and there were only 15 families in Tubac, as many of these ranching families lived on their ranches outside of town.

### Tubac as an Art Colony

Dale Nichols started an art colony in Tubac in 1948. Although the art colony failed after a year, a new identity for Tubac was born, and the Santa Cruz Valley Art Association was formed to encourage this new identity. The Tubac Center for the Arts was built in 1972 and continues to be an important facet of the community. Tubac also hosts the Festival of the Arts every February, which is the longest run annual art gathering the United States and is internationally renowned. Today, Tubac sells itself as the place "Where Art and History Meet", with over 100 art galleries and art happenings year-round.

### Tubac Today

Today Tubac is known largely for two things: art, and golf. In 1958, William R. Momon built a golf course on the old Otero Ranch, and the Tubac Golf Resort and Spa is a big draw. The village itself is now known mostly as an artists' colony. With the closing of the border after the 9/11 attacks, people became wary of visiting the border, and much of the commercial trade moved from Nogales to Tubac, breathing new life into the old Presidio. Tubac was recently named 1 of 14 "Up-and Coming, Must See Destinations in 2014" by Conde Nast Traveler and the Tubac Golf Resort and Spa was rated "1 of 10 Best Places to Escape the Cold" by USA Today.

# LITERATURE REVIEW

# INTERPRETIVE DESIGN

Interpretive design is a complete science of its own, dedicated to the conveyance of information through many means. Ultimately its serves to expand the understanding and appreciation of cultural, historic, or environmental factors of a site. Interpretation often takes the form of signage or other illustrative media, in an attempt to guide a visitor's understanding of the site in front of them. However, interpretation can be a more subtle undertaking, emphasizing the message at hand through environmental cues, demonstration areas, and other means.

## History of Interpretive Design

Tilden Freeman wrote the seminal work regarding the field of Interpretive Design, the volume after which many modern accounts are refined, called Interpreting Our Heritage. For Freeman, the main purpose of interpretation is to "awaken people's curiosity." He also emphasized the importance of passive interpretation, where the visitors are free to take or leave the information at their leisure (Freeman 1977). If the purpose of interpretation was to simply impart knowledge, then a book, movie, or a webpage would suffice. Interpretation differs from a book or a website in that for it to be interpretation, dissemination of information must take place at the site itself, which serves to reveal information, rather than simply imparting it. Freeman himself defines interpretation as "an educational activity which aims to reveal meaning and relationships through the use of original objects, by firsthand experiments, and by illustrative media, rather than to simply communicate factual information" (Freeman 1977:8). He also sets forth his "6 Principles of Interpretation", to help guide those looking to undertake an interpretive effort. Those principles are as follows: interpretation needs to be related to the experiences or personality of the visitor; interpretation is not information, rather it is revelation based on information; interpretation is an art influenced by many other arts; interpretation is not instruction but provocation; interpretation presents a whole rather than a part; and that interpretation addressed to children should be a different message, not a dilution of the original message (Freeman 1977). These principles possibly can and should be modified; however, they are an excellent starting off point for interpretative efforts across the board. Freeman also emphasized the importance of illustrating interesting facts and figures that people can relate to on a personal level, and project themselves into the story, engaging with the subject on a more personal level. Involving people in this process of learning and discovering, of giving them a problem to solve, is what more effectively engages a visitor and makes them receptive to the message that the site is trying to convey.

## Interpretation for Children

Children are an important demographic for interpretation, as school groups and families on holiday comprise a large demographic group of visitors to sites with interpretive emphsis. This creates an opportunity to tailor interpretation efforts to the interests and strengths of children – under the age of twelve, for our purposes. Though it may be instinctual to dilute information to make a topic easier for children to understand, Freeman argues that children do not find topics difficult to understand if they find the topic interesting. Children are more interested in facts and figures, especially superlatives (Freeman 1977), as they are at a developmental stage where they are trying to determine how the world works, and how things can be placed in comparison to each other. Children are also more interested when all of their senses are engaged, not just by sight and sound (which are easy) but by touch, taste, and smell (Freeman 1977). This presents a unique challenge for interpretation, as sight and sound are generally easy, but how can you taste the past? What does history sound like? Lessons that can be applied to the experience of the children under twelve can also be applied to adults. Most people, whether under 12 or over, retain more information when they are feeling actively engaged with the topic.

## Lessons from Interpretation

Interpretation is important at cultural, historic, and environmental sites, as often a visit to the site itself is the only experience the visitor might ever have with the topic (Freeman 1977). It is especially important to use the opportunity for interpretation to make the argument for preservation – why is the site worth preserving? When people have a firsthand experience with the site in question, they are more likely to support preservation efforts in the future, both at that specific site and others. The visitor is an important part of the interpretation equation because they have the ability to affect the world around them, and the interpreter is important because they serve as an intermediary between the visitor and the site that is to be interpreted (Pierssené 1999). Interpretation is not important just

Reconstructed Tucson Presidio.

for the sake of the ongoing preservation of the specific site; the role of education is important in the life of a visitor, as it can help the visitor to understand and appreciate how the world around them works. According to Pierssené, "learning's usefulness does not consist merely in factual knowledge or technical skills. Wisdom is a higher quality, and so is imagination. Wisdom and imagination are both built on knowledge" (Pierssené 1999:20). Knowledge is what is imparted through effective interpretation, which leads to both imagination and wisdom. Pierssene suggests that this wisdom serves the visitor at the interpretive site, but can expand into the rest of their lives.

### New Interpretation Techniques

Interpretation is generally undertaken, and is indeed more effective, at the site itself, rather than being taught; a dialogue is being created between the resource being interpreted and the visitor. In this, interpretation cannot take place in a vacuum; the individual must actually visit the site in question. Special events, such as demonstrations, special historic anniversary celebrations, and the like can be a good way to help interpret history (Pierssené 1999), as well as to encourage new and returning visitors to the site. Effectiveness of interpretation is also important, as word of mouth is strong currency in encouraging new and returning visitors. The

most important concern is disseminating information that the population will be interested in receiving.

Interpretation has a short shelf life, and must be constantly re-evaluated for the accuracy of the information, and the effectiveness of the message's delivery. Pierssené also offers a checklist for effective interpretive planning that builds on Freeman's guidelines and adds a new series of factors to consider when planning an interpretive project. These suggested guidelines include: relating directly to what the visitor can personally see or experience; dealing with the "how" or "why" of a situation; expressing a fact or story that can be built upon; creating an underlying appeal to a visitor's humanity; and hinting at general principles that a visitor can see exemplified throughout the site, if they keep their eyes open (Pierssené 1999:87). The last concern of effective interpretation design is that of productivity. Although it is difficult to quantify, evaluating the effectiveness of interpretive efforts is an effective step to take in this evaluation, through visitor observations, exit interviews, and other means.

## Reconstruction: Right or Wrong?

A debate rages about the efficacy and ethics of reconstruction efforts in historic interpretation, with arguments being made on both sides. Those in favor of reconstruction argue that reconstruction allows for easier interpretation of the reconstructed object by the relatively uninformed visitor. They also argue that it is a popular tool for interpretation and has its place in the interpretive toolkit (Jameson 2004). Reconstructions are often the by-product of a work program from an earlier era (Williamson 2004). Arguments can also be made that reconstructions allow for ease of interpretation (Distretti and Kuttruff 2004), creating a living history scenario where history can be "animated" (Fry 2004); and that interpretation should not be just for the benefit of the experts, but easy for the layperson to understand (Wheaton 2004).

Reconstruction detractors argue against reconstruction largely focusing on the perceived falseness of reconstruction efforts, especially when they are not based on copious research and careful examination of existing structural evidence. Any reconstruction that takes place under the auspices of the National Park Service has to adhere to the strict criteria put forth by the NPS, and if undertaken, needs to be clearly identifiable as a reconstruction (Jameson 2004). Often in historic sites, reconstruction efforts tend of focus on one narrow representation of the site (Williamson 2004). This focus might be one specific time period, or one specific user group; many times this is the more recent past, such as the representation of European settlers in the American West. Reconstruction efforts can be especially problematic when it comes to maintenance issues and the upkeep that they demand, especially when it comes to adobe (Wheaton 2004). Adobe presents a particular challenge in the ephemerality of the material, but also in the lack of skilled craftsman and maintenance employees that are versed in the intricacies of the medium.

## Preservation and Interpretation in the Southwest

Although there is a long history of ruins reconstruction in the Southwest, the major landholders and cultural institutions who manage the ruins have their own guidelines for dealing with preservation and reconstruction efforts. As discussed previously, the National Park Service generally does not support reconstruction efforts, except for cases in which there is enough research and documentation to eliminate guesswork in the production of the final product. Sites that are managed by the Park Service are maintained continuously in the condition that they were in when they came under the stewardship of the NPS. A noninvasive approach to preservation is favored by the Arizona State Parks (Neal 2004), which often takes the form of reburial, or covering the excavation with enough local fill to protect the remains, to preserve the site for future public and professional education. At sites where maintenance and security is potentially problematic, this is an especially effective solution. Even though the site may be reburied, environmental mitigation still needs to be undertaken to minimize the effects of site erosion caused by wind, rainfall, and runoff (Neal 2004). If these environmental preventions are undertaken, the site will require little subsequent maintenance. Neal also argues that "generally, sites that we as archaeologists and resource managers are not prepared to protect, manage, and properly investigate and interpret should not be developed for the public" (2004:243). If this is in fact the case, and reconstruction is ruled out, how can the site that can't be seen be effectively interpreted for a visiting public?

# HERITAGE GARDENS

The agricultural legacy of the desert Southwest is unique. Agriculture has been practiced in the Southwest for thousands of years before the arrival of Europeans, adapted to local environmental conditions. What is also remarkable is that the system in the Southwest produces more food on less water than anywhere else in the world (Nabhan 2010). Development of agriculture is intrinsically linked with the development of permanent human settlements; without each other, neither could exist. In a day and age where most of the food that we consume every day is produced in another state or another country, with a completely different environment and water supply, it is easy to lose track of the cultural lifeways that made life in the desert possible for thousands of years. Though it has not often been the concern of heritage professionals to incorporate agricultural heritage practices into the greater interpretive and preservation whole, it has become more common to incorporate agriculture into the greater story of our culturally and historically significant places. A story of our past is made more whole with the story of the food which sustained it.

## Prehistoric Foodways

The ancient Hohokam, precursors to the modern O'odham tribes, were the farmers of the desert, and adapted their agricultural practices and resources to fit their unique needs. Much of this early agricultural innovation originated in Mexico, which had potential for crop development that was rivalled only by the Fertile Crescent and Asia (Dunmire 2004). The earliest origins of agriculture in the New World are found in present-day Mexico (Nabhan 2010). What is now southern Arizona benefitted from its close proximity to this early agricultural center, as crops were brought north along trade routes from Mexico, where they could be tested in and adapted for the desert climate. Some of the crops that were grown in the early Santa Cruz River Valley were several varieties of squash, gourds, beans, and maize; those were further reinforced with crops that had been brought up from Mesoamerica, such as grain amaranth, tomatoes, cotton, tobacco, and prickly pears. From 2100 BCE to 1540 CE, 20 cultures native to the Southwest had independently developed a group of crops and agricultural practices that were unique to the Southwest (Nabhan 2010). Pottery, dating to around 2000 BCE, was found near Tucson, making these the oldest pots ever recorded in the Southwest. These pots allowed for the cooking and processing of food stuffs that would otherwise be too problematic to consume. Also found were pipes and remnants of a plant in the tobacco genus, dating to 1200 BCE, which mark this site the first known incidence of tobacco smoking anywhere in the world (Dunmire 2004).

The development of irrigation was a key component in developing agricultural practices in the desert. Current archaeological findings place the earliest date of irrigation of the Santa Cruz River around 1200 BCE. This system of canals and dams was developed independently of irrigation systems developing in Mexico around the same time (Dunmire 2004). The dams and canals that were dug by the Hohokam were incredibly sophisticated, and this irrigation system can be found nowhere else in what is now the United States (Dunmire 2004). The Hohokam used this irrigation system to cultivate corn, beans, squash, and gourds, as well as cotton, tobacco, little barley, native agaves, and cholla in their fields (Dunmire 2004). In addition to these cultivated agricultural yields, they also supplemented their diets with harvested wild foods of the desert, including mesquite pods, saguaro fruits, purslane, saltbush, and chollas, in addition to wild game, such as bison, pronghorn antelope, and rabbits (Dunmire 2004). The Hohokam disappeared from southern Arizona approximately 1,000 years ago. While no one knows with any certainty, it is suspected that severe drought may have played a role. While the Hohokam may have disappeared, it is their descendants, the O'odham, who inhabited this area of the Santa Cruz River when the Spanish first arrived on the shores of the New World.

## The Pimería Álta

When the Spanish arrived in the Pimería Álta, they found themselves in a unique and vibrant agricultural tradition. At the time of the Spanish arrival, native farmers in the Southwest were growing crops in a wider range of microclimates and life zones than the rest of the farmers of North America combined (Nabhan 2010), making these farmers experts in the unique growing conditions of the desert Southwest. The indigenous peoples also had at their disposal the "richest assemblage of food plants in the western hemisphere" (Dunmire 2004:33). To this day, no lasting domesticated and productive plants came from the area that is now the United States and Canada (Dunmire 2004). The O'odham people had domesticated some native southwestern crops for their own use; these include agaves, wolfberry, devil's claw, bushmint, and chiltepins (Nabhan 2010). They also had their own manner of

Mission Fig

preparing food, such as boiling, grilling on coals, or parching in baskets.

The Spanish came with the intention of spreading the word of God to the New World, as well as exploiting it for whatever resources might be contained within its shores. They also sought to bring their food traditions with them, faced with an uncertain agricultural future before them. The conquistadores that came in search of gold were not as concerned with bringing those food traditions with them, but the missionaries who followed were. Father Eusebio Kino, who had studied agriculture and animal husbandry, was especially focused on breathing new life into the New World soils. In addition to a wide variety of fruit trees, vegetables, and grains, he also brought honeybees, livestock, and horses to the New World, which forever changed the face of the American Southwest.

The plants and animals that Spain brought to the New World were not all species native to the motherland. Though the American Southwest and Mexico are largely associated with a Spanish cultural influence, the gardens and foodways of Spain were shaped themselves by Persian, Arabic, Moorish, Greco-Roman, Mayan, and Aztec cultures and foods (Nabhan 2010), which were all adapted for a dry, desert climate. Later settlers brought even more species with them, introducing dates, olives, berries, and several new breeds of livestock (Nabhan 2010). In 1767,

the Jesuit missionaries were expelled from the New World by the King of Spain (Dunmire 2004), but their agricultural and livestock heritage remained and became completely ingrained in the social fabric of the American Southwest.

Master List of Plants Introduced by the Spanish in Arizona/Sonora

| | | |
|---|---|---|
| Barley | Celery | Rice |
| Wheat | Cabbage | Endive |
| Lettuce | Celery | Leek |
| Carrot | Garlic | Onion |
| Radish | Turnip | Black-eyed pea |
| Broad beans | Garbonzo | Lentil |
| Pea | Apricot | Peach |
| Plum | Citron | Lemon |
| Lime | Orange | Apple |
| Fig | Olive | Pear |
| Pomegranate | Quince | Anise |
| Caraway | Cumin | Banana |
| Date Palm | Grape | Melon |
| Watermelon | English Walnut | Coriander |
| Black Mustard | Sugarcane | Fennel |
| Marjoram | Mint | Oregano |
| Parsley | Rosemary | Rue |

Dunmire 2004

## Heritage Farming Today

Heritage farming practices are more relevant today than ever. Especially in the desert Southwest, where predictions state that the environment will only get hotter and drier in the very near future, maintaining agricultural systems and propagating plants adapted to the desert environment may soon become a necessary means of survival. What the farming practices in the Southwest have been accomplishing for years, in terms of breeding edible and productive crops that can withstand sun and drought, may be an advantage to the rest of the world. The world is predicted to soon have less available fresh, potable water; therefore, furthering the development of agricultural practices that are water-wisewill help to ultimately adapt our agricultural lifestyles to changing times. For example, the O'odham brown tepary bean that can reach maturity and produce seeds with only soil moisture accumulated from two rain events (Nabhan 2010),.

The increased interest in local food production has proved advantageous for heritage farming practices, as people are seeking out these locally produced heritage products (Nabhan 2010). Heritage farming is on the upswing throughout the country, especially in the Southwest, combining traditional desert farming techniques with modern machinery. This resurgence of interest in heritage farming is especially advantageous given the precarious water situation in the Southwest. Due to unprecedented post-war growth in the sunbelt areas, water and land that was once used primarily for agriculture is now being destroyed by development, whereas the water becomes redirected for residential, recreational, and industrial needs (Nabhan 2010). People's interest in supporting heritage farming practices can be seen throughout the Southwest, and indeed, all over the nation, at farmer's markets, local farm-to-table restaurants, organizations like the Santa Cruz Valley Heritage Alliance, and publications such as Edible Baja, who promote heritage and local sustainable food production.

The increasing interest in heritage foods has also made other groups sit up and take notice. Cultural and historic sites can encourage visitor growth by featuring heritage foods at the visitors' center, or during special events, allowing visitors a chance to actually taste history (Nabhan 2010). Casual visitors are given the opportunity to explore heritage foods, and visitors that come with the express intent of exploring agricultural traditions comprise a new category of visitor. Congress has asked the National Park Service to explore and develop ways to encourage the production of traditional products in national parks through its Conservation Study Institute Publication #14 in 2007 (Nps.gov 2014). This effort can be seen in several historic areas managed by the National Park Service: The Kino Heritage Fruit Tree Project at Tumacacori; the gardens at the Hubbell Trading Post National Historic Site; the gardens at the Canyon de Chelly National Monument, where the agricultural heritage is interpreted by Navajo Park Service staffers; and the historic orchard at Capitol Reef National Park, among others.

Although these heritage farms on state and national park land are designed for interpretation and education of visitors on native and heritage food traditions, they serve a dual purpose. By growing, preserving, and propagating these heritage species, they also serve to ensure their continuous survival for the future. Many of these sites and others endeavor to breed and propagate these species to keep one foot in the traditions of the past while also looking toward the future. When many parks, farms, groups, and individuals share the load, it increases the chances of survival and adaptation of these heritage foods and livestock.

## Ethnobotanic Gardens

Ethnobotanic gardens are a small piece of whole heritage foodway preservation oeuvre. Often ethnobotanic gardens take the form of a small exhibit incorporated into a larger botanical garden, however, ethnobotanic gardens themselves have grown increasingly common as demonstration areas in other cultural and historic sites. Sometimes these gardens are attempted recreations of

historic gardens. However, as landscapes are composed of living, changing things, its often not possible to have and preserve the exact planted monument as it was at the time; rather, "the historic functions, the diverse traditional craft techniques, and the original ideas" (Hajós 2004:258) are the important elements that can be interpreted and tell us something about our botanic past. Ethnobotanic gardens can also exhibit collections of useful species, exposing a relationship between people and plants (Innerhofer and Bernhardt 2011). Though they can be considered a type of reconstruction, gardens that a visitor can use all of their senses to explore give people an opportunity to put themselves into the historic place; "An essential aspect of monument preservation is to bring about the vivid recollection of the abundance of past human culture" (Hajós 2004:258). The experience of food can recall an immediate memory for people as individuals, remembering our grandmother's pie, or special birthday treats. Food itself, and the preparation of and cultivation of food, is a universal human attribute. When we can put ourselves into the shoes of a different person at a different time, through the way that they grow, cook, consume, and store food, we can easily view them as real, living, breathing people, and not some grand historic abstract. If the purpose of preservation is to allow the visitor to project themselves into the past, a heritage garden presents the past in a way that is very tangible, and accessible, and also quite visceral.

### Purpose of Ethnobotanic Gardens

Ethnobotanic gardens do not have to be designed with the sole intention of representing the food that people grew and ate. Plants were grown for other purposes, including medicine, crafts, and ritual purposes; in this way, ethnobotanic gardens can illustrate the fundamental relationship between people, plants, and the natural environment (Innerhofer and Bernhardt 2011). A planting plan can be determined in conjunction with existing indigenous groups, if at all possible, or gleaned from archaeological evidence or other research outcomes. Ethnobotanic gardens can also provoke an instinctual reaction to the natural world, an irrational response in a rational time, engaging people's hearts instead of just minds (Cohen 1997). Establishing a metaphysical link between the past and the present allows people to connect sympathetically with a people and place not of their current time.

Ethnobotanic gardens can serve another important purpose, in preserving the biological diversity of plant and animal species (Innerhofer and Bernhardt 2011). Though we tend to think of gardens and plants as fairly static and relatively unchanging, they can be utilized for interpretive efforts. The garden can be used as a backdrop or resource for teaching classes and workshops on traditional medicinal techniques, or be used to grow materials for classes and demonstration of traditional crafts (Innerhofer and Bernhardt 2011). Preserving the physical plant is important for preserving the genetic reserve of the species, as well as the cultural heritage that is an implicit part of its cultivation (Jones and Hoversten 2004). Ethnobotanic gardens can also serve as an important cultural linkage throughout generations. By researching and implementing carefully constructed ethnobotanic gardens, they can be maintained and cultivated through a number of years, which helps to convey shared cultural knowledge and understanding through the generations (Innerhofer and Bernhardt 2011). This is especially critical when considering that many of these species could face threats in the wild through climate change, habitat loss, or other possible destruction.

### What Makes an Ethnobotanic Garden Successful?

Though it is difficult to immediately define what constitutes success in any built environment, especially in the landscape, an attempt at quantifying those attributes also means attempting to continually improve upon them. Susan Jones and Mark Hoversten endeavored to visit and study a large number of ethnobotanic gardens located throughout the southwestern United States, and distilled their findings into the following definition: "A successful ethnobotanic garden tells a compelling story about the relationship between people, plants, and the natural world in a particular place at a particular time, within a broader cultural or environmental context" (Jones and Hoversten 2004:153). They also propose six questions for anyone attempting to design an ethnobotanic landscape to ask themselves before proceeding. These are: What people are being interpreted? What aspects of their culture? How did they use this place? What plants did they use? How did they use them? And what did they make with them? Through their careful study and analysis, Jones and Hoversten determined that the best ethnobotanic garden design goes beyond merely disseminating information, and strives to provoke thought, bring about change in visitors' perception of, attitudes towards, and behavior on the land (Jones and Hoversten 2004:153). In addition to their visits to a number of ethnobotanic gardens, they did extensive research and investigation of other case studies, to develop a framework for attributes of successful ethnobotanic gardens. In their opinion, a successful ethnobotanic garden: adheres to a clearly defined mission; focuses on its visitors and capitalizes on the resources of its site and institution; tells a compelling story; provides an environment conducive to learning; and adapts through time (2004). These attributes cover the range of design decisions that should be considered when developing an interpretive framework for ethnobotanic gardens. They hope that the consideration of these five attributes will lead to a successful interpretation, programming, and design framework (Jones and Hoversten 2004).

A successful design can link us to our collective past, and teach us tolerance and respect for others, as well as a responsibility towards the earth (Jones and Hoversten 2004). A good design can also engage all of a visitor's senses, and connect them to nature on an emotional level (Cohen 1997), however briefly. The design can also incorporate experiential learning opportunities for people to visually connect to the heritage that is being represented in the garden design (Jones and Hoversten 2004). Visitors are a garden's most important resource, and without them, all of the interpretation, design, and research will be moot. In this, ethnobotanic gardens are more effective when they are fully integrated into the fabric of a site (Jones and Hoversten 2004). Getting people to the site so they can project their own memories and experiences into it is considered key for success.

Heritage orchard at Tumacacori National Historical Park.

## The Visitor Experience

If visitors are the most important component of an ethnobotanic garden, how can a garden be designed in a way that is informative and engaging for the visitors? Jones and Hoversten present several attributes of a successful visitor experience, known by the nickname ADROIT: a clearly defined Arrival; Decompression before the new experience; Reception to the message being imparted; Orientation to prepare the visitor for an education journey; Interpretation to provoke thought; and Transformation of the visitor or their behavior in some way (2004). Several non-material qualities that contribute to the overall visitor experience are also suggested: namely, congruency between spaces; immersion in the space; proximity to other cultural or environmental resources; and access to the site itself and its surrounding resources (Jones and Hoversten 2004).

## Heritage Farming Efforts in the Santa Cruz Valley

There are many organizations that work within the greater Santa Cruz River Valley, focused on discovering, recovering, and growing these heritage foods for the future. All of these groups could be considered for partnerships with the Tubac Presidio State Park in developing their own heritage garden project.

Heritage orchard at Tumacaori National Historical Park.

The Kino Heritage Fruit Tree Project is working in partnership with Arizona Sonora Desert Museum and Jesus Manuel Garcia-Yanez, as well as Robert M. Emmanuel at the University of Arizona to find and propagate fruit trees that are of the same cultivars brought by the Spanish missionaries in the 17th and 18th centuries, by looking at mission orchard communities, historic houses, and private backyards in Arizona and Sonora, Mexico. The Heritage Fruit Tree Project is cultivating these stocks and planting them in the historic orchards at Tumacacori National Monument and Tucson Origins Historic Park, contributing to the interpretation, education and preservation of these heritage fruit stocks (Desertmuseum.org).

Native Seed/SEARCH, based in Tucson, was founded to protect the biodiversity of the plants of the southwest by storing and propagating seeds, distributing the seeds to tribal communities, and growing and adapting seeds at test gardens and in partnership with growers worldwide. Seed saving serves dual purposes; it preserves the cultural practices associated with the heritage crops, while protecting the biodiversity of the groups and promoting food security through the preserved genetic diversity. Promoting and propagating heritage crops allows communities to guarantee their own food security by saving and planting their seeds year after year, promoting the cultural sustainability and survival along with the seeds' survival (nativeseeds.org).

Tumacacori National Historic Park is working in partnership with the Kino Heritage Fruit Trees Project to replant a section of the historic mission orchard at the site. Research was undertaken to identify, obtain and propagate these historic trees, including peach, pear, apple, quince, pecan, pomegranate, and fig.

Locating this heritage garden in a historically significant mission site enhances its connection with the cultural interpretation of the site, and is one more link in the chain that connects the whole network of heritage gardens in the Southwest (Nps.gov).

The Santa Cruz Valley Heritage Alliance is a group working towards the establishment of the Santa Cruz River Valley as a National Heritage Area. A National Heritage Area is a designation of a cultural landscape that provides a framework for preservation efforts and economic growth within the designated area. The National Park Service defines a National Heritage Area as a place "where nature, cultural, historic and recreational resources combine to form cohesive, nationally distinctive landscapes arising from past and present human activities shaped by geography" (Nps.gov). The designation of National Historic Area does not impose federal zoning or regulations; instead, it is a community-based preservation strategy that simply encourages preservation and development (Santacruzheritage.org). According to Santa Cruz Heritage Alliance, "the non-economic benefits of the proposed Santa Cruz Valley National Heritage Area include the promotion of local foods, crafts, and other traditional products. The National Heritage Area designation also supports and improved quality of life for residents through preservation of the places, landscapes, and traditions that make this region unique" (Santacruzheritage.org). The incorporation of local and heritage foods and products into the program for the Tubac Presidio State Park can serve to establish the park as an integral piece of the National Heritage Area.

Seine, Paris

# SMALL PARK DESIGN

Small park design specifically focuses on parks that are under 10 acres. Small parks, like all parks, must take into account the needs and desires of a wide variety of users, but unlike larger parks, these uses must be effectively designed into a smaller, often less varied, space. Management and funding is also an important concern (Phillips 1996), as it is with large parks, but as smaller parks tend to be physically smaller in size, draw from a limited surrounding user base, and have more specific programming, funding and management tends to be more of an issue for smaller parks. Designing for all potential user groups, as well as anticipated user needs, is an important step in proactively addressing issues that may eventually arise, and helps to secure a stable, long-term future for the park. Many small parks share a set of amenities, and when they are designed with consideration and thoughtfulness, can contribute greatly to the long-term success of a small park.

## Picnic Areas

Picnic areas provide a specific destination within a small park, and bring users during many different times of day. Picnic benches should be arranged so that they are able to be used by both large and small groups, and are especially important gathering places for Hispanic families (Forsyth and Musacchio 2005). Other easily overlooked, but still important concerns are accessibility, shade, and pathways to and from the picnic areas (Phillips 1996). Providing gathering space of a social nature in a cultural and historic park will help to define a use for the park that is based on more than just tourism, and will help further integrate the site into the surrounding community.

## Parking Lots

Under Phillips' guidelines for park design, landscaping should be at least 10% of a parking lot design, with at least one tree for every 10 spaces (Phillips 1996). Although this may be considered adequate for more temperate climates, it is considerably more important to provide shade in parking lots in the desert, both for the people and cars using the lot, but also to mitigate the average asphalt parking lot's contribution to the urban heat island effect. Plantings and trees in parking lot areas can also serve as a visual screen from a surrounding residential area (Phillips 1996). The design of the parking lot itself, as well as the design of areas buffering a nearby road, are also important attributes. The planted area within a parking lot can serve as a sort of landmark, as well as contributing to the scenic beauty of the surrounding area, making the small park a good neighbor.

## Trails

There are a number of different ways that trails can be designed in small parks, taking into account the user base, as well as any attractions or other assets that need to be reached. Simple things, like designing long curves to discourage shortcuts (Phillips 1996) can be universally applied, or providing walking paths that provide a sensory experience (Forsyth and Musacchio 2005), which will keep visitors actively engaged. More specific design guidelines focus on providing accessibility, for instance, no higher than a 5% slope on walkways (Phillips 1996). Other features require more informed consideration; should the pathways be paved in cement or gravel, depending on the anticipated use, or should brick pavers be used, because they contribute more to the overall character of the park (Phillips 1996)? These are questions that must be answered on a case-by-case basis, depending on a number of factors unique to each individual small park.

## Stormwater Management

Managing stormwater can be an important factor in smaller park design, in areas that lack municipal stormwater management, and especially in the desert. It has also become best practice to manage stormwater on-site, instead of pushing it off for another party to deal with. Stormwater can be managed by traffic islands and parking lots to improve the overall quality of the groundwater (Phillips 1996); it can serve to highlight the greater hydrologic functions of the park and surrounding areas (Forsyth and Musacchio 2005); it can serve an important role in an arid climate to provide supplemental irrigation to vegetated areas; and can create habitat for wildlife and plants (Forsyth and Musacchio 2005). Looking at the myriad benefits that managing stormwater on-site has (not to mention the cost savings of not having to build costly stormwater infrastructure), it would be irresponsible to not consider stormwater management when designing the infrastructure of a small park.

## Microclimate

Providing a comfortable microclimate for park visitors is a very important aspect to park design. Without considering this factor, the user base for the park will likely be very small. When designing in more temperate climates, it is important to consider the creation of a number of different microclimates, such as seasonal shade, and warm sunny spots in winter (Forsyth and Musacchio 2005). In the desert, shade becomes the most important environmental condition to consider for overall visitor comfort.

Microclimate can be managed through several different means. Man-made and mechanized structures can be placed on-site; shade sails, cooling towers, misters, and other shade structures can all be utilized to manage microclimate. Though this can be a very effective technique, the setting and context of the site should be taken into consideration. There are other, more "natural" interventions that can manage microclimate and be more visually appropriate to a natural or historic small park. Water resources can come into play, considering the cooling effects that bodies of water have on the surrounding environment. Hydrologic approaches can also support plantings, such as trees, that can contribute to the greater evapotranspiration rate and create a climatic oasis (Forsyth and Musacchio 2005). Trees and other plants, and the shade that they provide, contribute immediately to microclimate management, and can serve further environmental functions by mitigating local air pollution, improving the quality of stormwater runoff, and providing habitat suitable to wildlife.

## Wildlife

Ecology is an important aspect of park design, though it is often considered secondary to human concerns. Parks, through their very existence, can contribute to the greater ecology of a region in contributing a patch to the overall habitat matrix. Even if the park is designed solely for human recreational purposes, it can still contribute to a greater ecological whole by preventing erosion, preventing proliferation of invasive species, buffering waterways, and more (Forsyth and Musacchio 2005). Parks can also be designed to provide visual, but not physical, access to certain areas, preserving the idea of "open space" while providing protected habitat for flora and fauna (Forsyth and Musacchio 2005). Serving wildlife and ecological function serves us all; "parks can connect people to plants, wildlife, history, and each other, and thus support interactions" (Carr et al 1992:24). Such practices as daylighting streams, for instance, can make visible to park visitors the ecologic functioning of an area beyond the scope of the park itself. Although it may be too much to ask of a small park for it to create habitat for large charismatic species, such as mountain lions or bears, small parks can be designed to accommodate generalist species, such as birds, insects, and pollinators. General guidelines for designing habitat in small parks for wildlife include connecting with other ecological corridors, maintaining a tree canopy and water source, and limiting human access in areas (Forsytn and Musacchio 2005).

## Plantings

Managing the planting plan for a small park is challenging, as plantings are very important in terms of their function; plantings help to create microclimate, buffer the park visually, create wildlife habitat, and filter stormwater. Planting native species is also important, especially in areas that are environmentally sensitive and/or susceptible to invasive plant species. However, strict native plantings are not always desirable, as "there is value to planting strategies that reflect historical patterns of urbanization, honor a region's ethnic heritage, or use a mixture of local and exotic plants to highlight seasonal change and the sensory experience of a park" (Forsyth and Musacchio 2005:55). Plantings then do not serve only ecological or microclimatic functions, but instead can be agents of education and interpretation.

## Volunteers

In an age where money and reliable maintenance are hard to come by, getting volunteers involved for the design and maintenance of a small park is of utmost importance. Small parks are ideally positioned to take advantage of volunteer efforts, as their small size makes such efforts seem manageable and volunteering is seen to have a more discernable impact. Especially if the park is a public amenity, designed to appeal to a wide segment of the population, a large pool of potential volunteers will potentially be created; "involved people are one of the most important features of a successful park" (Phillips 1996:6). Small parks are considered part of the daily ritual of life for its nearby users, and the participation of the public can help to ensure its long-term success (Forsyth and Musacchio 2005) in a way that no amount of design and maintenance ever can. Although in some instances the design of a small park can be helped along by public input, it is also effective for community groups to initiate small projects to upgrade the park after it is built (Forsyth and Musacchio 2005). Community involvement outside of the immediate neighbors is also important; park elements can be designed to complement local school curriculum (Forsyth and Musacchio 2005), or the park design and maintenance itself can be undertaken in partnership with local schools (Lancaster 1983). One thing is for certain; the more people actively involved in the outcome of a small park, the more of a long-term success it will guarantee.

## State Historic Small Park Design

Small parks that serve as more than just recreational facilities have their own unique design concerns and strategies, including more provisions for reconstructions, site works, interpretation, and visitor comfort (Lancaster 1983). Though these are common features to state historic parks across the board, each historic park has its own individual characteristics and challenges that must be addressed on a case-by-case basis.

# CULTURAL PARK DESIGN

Cultural and historic parks differ from recreational parks in the amenities that they provide, as well as their overall goal of preservation. Cultural and historic parks also have additional missions in terms of education and interpretation, elements that are often not part of small parks designed primarily for recreational purposes.

## Historic Sites vs. Historic Parks

What is the difference between a historic site and a historic or cultural park? A site may be an isolated object that is not surrounded by context that contributes to the overall interpretation of the site, and is not protected or preserved in any significant way. Historic and cultural parks "are established through the thematic identification, bounding, and interpretation of a place, and by development (sometimes quite limited) intended to facilitate and shape the park experience" (Carr, Eyring, and Guy-Wilson 2013:1). Sites do not have to be either cultural or historic; a site can be both (Solomonson 2013), it is often the cultural history of land use that leads to the establishment of a historic site.

## Myopic Cultural Presentation in Historic Parks

A problem with cultural presentation in historic parks is that it often focuses on one narrow slice of history, to the exclusion of everything else. In areas where there has been a long history, use, and occupation of an invading force, there is a difficulty in accurately representing the disparate groups and time periods in one cohesive plan of interpretation and design. This difficulty of dichotomy often results in one singular, easily presented representation that does not necessarily acknowledge the full history of the area. In these instances, it is important to examine the greater cultural context of the historic site to facilitate an accurate representation of past meaning and uses (Porter and Bull 2013). This can help address the challenge of representation in historic sites, especially for those sites that have a history of indigenous occupation that may lack an extensive written or physical record. Extensive research is an important aspect to inclusive representation, and although they are easily overlooked, the "attitude and practices of indigenous tribes are a fundamental element of the meaning and significance of the place" (Porter and Bull 2013:170). Though Porter and Bull are discussing the cultural landscapes of Australia in this case, the cultural context of the arrival of European explorers is very similar between the United States and Australia. European settlers arrived in both lands, each of which were already inhabited, kept what they found useful and disregarded the rest (Porter and Bull 2013).

## Preservation Ethos

Many historic and cultural parks are established with the specific intent of preserving the site. For parks, more than preserved "objects", a cohesive and persuasive presentation of the landscape to visitors and outsiders is the first step in ensuring its continued conservation (Porter and Bull 2013). The link can be established between the visitor and the life of the park, as the park design itself is focused on the visitor and a meaningful experience of a landscape, but also is a means of preservation (Carr, Eyring and Guy-Wilson 2013).

## Design and Representation in Historic Parks

Though there are many political, social, and cultural concerns in the creation of a park, these factors lend themselves to design implications through the creation or planning of the park itself. It is important to consider "focusing on the landscape...without altering it, creating atmosphere rather than buildings, proposing new use and activities...and sufficiently integrating local communities into the parks activities" (Lucienne Thys-Secho 2013:135). Designing for multiple uses gives a cultural or historic park meaning and programming beyond the immediate preservation goals, and can potentially increase the ongoing user base for the cultural asset. This can also help the position of the park within the community in which it resides; parks can contribute to the long-term economic health of the surrounding community (Carr, Eyring and Guy-Wilson 2013).

Guidelines have been suggested for a variety of specific design attributes in cultural and historic parks. To ensure the long-term success of the park, it is important to combine recreation, aesthetics, and conservation, as well as its symbolic value, both in a local and national discourse (Solomonson 2013). Especially when designing a cultural or historic site, it is tempting to look at the past and cultural cues to inspire the specific site elements; however, "respect for the character of the local area will not be achieved by the appropriation of stylistic cues or fashions

Tumacaori National Historical Park.

from another era, but through the sensitive consideration of the location, siting, and scale of the new elements" (Spackman and Massgo 2002). For the National Park Service, historic reconstructions in the architectural realm need to be clearly distinguishable from the original fabric, and this approach can be applied to landscape interventions as well. Another approach is to more clearly consider the palette of the interventions: plants, construction techniques, interpretive materials should create a strong link to the culture being interpreted, and should be treated as an educational opportunity, not just as site decoration (Jones and Hoversten 2004).

# CASE

# REVIEWS

Arizona Sonora Desert Museum

# CASE REVIEWS

Case reviews present an opportunity to apply lessons and guidelines from the literature review to real-world cases, where these guidelines and attributes can be evaluated for their successes and failures. These case studies are not specific to one area of investigation in the literature review; many of these sites combine elements of interpretive design, small park design, cultural and historic park design, and heritage gardens, as well as archaeological remains and reconstructions. Some case reviews have just one or two of these elements, and some have all of the above. This is because none of these elements exists in a vacuum, and successful parks combine all of these elements into a greater whole. They also serve a function in that a project cannot be evaluated before it is built, and case studies can function as a stand-in for an in-depth project review after the fact.

The importance of conducting case reviews in the overall conceptualization and design of a site plan is to apply the lessons from the literature review, through the case reviews, onto the eventual site design. This research is indented to function as a sort of proof-of-concept for any design decisions made for the final design.

Tohono Chul Entry Plaza

# FORT LOUDOUN STATE HISTORIC AREA

Fort Loudoun is a mid-18th century British fort in Tennessee that has since been designated as a State Historic Area. The fort was occupied originally between 1756 and 1760, and was eventually abandoned and overgrown, although it remained an important landmark locally. Archaeological excavations conducted under the auspices of the WPA found some historic remains. Interpretation efforts at that point included an artifact display, a brochure, and a self-guided walking tour. When the Tennessee Valley Authority threated to flood the site, extensive research was undertaken, both archaeological and historic, and enough information was found to appropriately guide reconstruction efforts, which commenced in 1960. The area that now comprises Fort Loudoun State Historic Area was saved from the flooding, but the ensuing lake completely altered the surroundings of the site. As the site was largely reconstructed, and because of the lack of original historic material, there was no need to protect fragile archaeological remains. Themes of interpretation were selected for the site; these included the natural environment of the valley, the history and occupation of Fort Loudoun, and the archaeological remains, as well as the fort reconstruction itself. As the site is used mostly by tourists and school groups, the reconstruction of the site allows for easier interpretation of the site, a more complete educational resource for school demographics, and enhances awareness of the historic past. Living history weekends and events serve to reinforce the interpretive efforts for this demographic, among others. The site also attracts visitors for more than just history; people in search of fall colors or water-related recreation also visit the site (Distretti and Kuttfruff 2004).

## Design Implications

Reconstruction should only be undertaken in instances where the historic record is complete enough to allow reconstruction to proceed in an informed fashion. In this case, the research did allow for this method of interpretation, which is a benefit to a wide variety of visitors who may find the historic remains of the site easier to understand if they are made visible. Ease of interpretation encourages school groups and other educational users to visit the site. The site creates opportunities for recreation outside of historic site visitation. Reconstruction can take place at a site where there is no longer any visible evidence; recreating the evidence is enough to restore interest in the site.

# BENT'S OLD FORT

Bent's Old Fort was a trading post built of adobe located on the mountain branch of the Santa Fe Trail that largely dealt in the fur trade. The reconstructed fort is located near modern-day La Junta, Colorado, is unique among many historic sites in that it is entirely constructed of adobe. The fort itself was abandoned and partially burned in 1849, rehabilitated in 1861 and turned into a stage station, and then left to melt in the elements again in 1881. What little remained of the adobe buildings was cleared off of the site in the 1921 Arkansas River Flood. The Daughters of the American Revolution purchased the site, and donated it to the Colorado Historic Society in 1954. When it came under the ownership of the historic society, the "site was excavated partially...to create an interpretive exhibit utilizing the exposed adobe foundations on stone footings" (Wheaton 2004:217). As the site was left to the elements, the adobe eventually eroded, leaving no material behind above grade. Reconstruction efforts were funded in 1973, and enough original material was uncovered through research efforts to allow the reconstruction of the site. As with many adobe projects in this era, the reconstruction team used cement to seal the adobe bricks, eventually leading to structural issues within the adobe walls. The Colorado Historic Society had initially intended to replace the plaster yearly, for demonstration and interpretation purposes, but yet again the weather intervened, and eroded the reconstructed building away. The National Park Service took over stewardship of the site in 1973 as it had become too much for the Colorado Historic Society to manage (Nps.gov). The constant reconstructions of the site created a problem with the perceived authenticity of the site, and became an ongoing maintenance problem. While the reconstruction efforts may have been flawed, in the end it was done in the interest of the public, as "no off-site reconstruction can convey the experience of walking on 'hallowed' ground" (Wheaton 2004:230).

### Design Implications

In reconstruction projects, especially those involving adobe construction or something that needs constant, permanent maintenance, it's important to plan well in advance for those maintenance requirements, as well as for anticipated future use of the site. Reconstructions allow the public to more easily interpret the site, and to better understand its history. Adobe can present an issue, especially in areas with heavy rains or flooding potential. Reconstruction efforts that are only half-realized may muddy interpretation efforts, calling into question the authenticity of the site, as well as the reconstruction efforts themselves.

# RIO GRANDE BOTANIC GARDEN

The Heritage Farm at the Rio Grande Botanic Garden in Albuquerque, New Mexico, recreates a 1930's era Albuquerque farmstead, with kitchen gardens, orchards, vineyards, as well as reconstructed farm buildings. This interpretive garden is part of a larger botanical garden whole, the mission of which is to educate and interpret the cultural and natural heritage of the area for its visitors. As part of the greater mission of the Rio Grande Botanic Garden, the Heritage Farm interprets a very specific period of time in this particular place, and interpretive programs take place at the farmhouse itself (cabq.gov). Among other heritage products, this farm grows mission figs, Sonoran pomegranates, Navajo-Churro sheep, and Spanish turkeys, as well as raising many varieties of heirloom vegetables: chapalote popcorn, amaranth, tepary beans, and acorn squash. These crops are grown on-site, and the reconstructed stables are home to a variety of livestock that live on site. These heritage varieties is that they are already adapted to the dry, desert environment and they continue to adapt to new desert conditions as they are continuously grown, which helps to preserve the overall genetic diversity of food crops, especially those that are adapted to climatic extremes. People are actively seeking out locally produced heritage products, which create  demand for these goods, while supporting the farmer and practices and educating the public as to the importance of these heritage food products (Nabhan 2010).

## Design Implications

There is currently demand for locally-produced heritage products, and exhibits that showcase the relevance and history of those products serve to reinforce and grow the demand. Historic heritage gardens are important in preserving the genetic diversity and evolutionary advantages of desert plants, and they can create an opportunity for education of visitors and the public. Heritage gardens can give visitors the opportunity to interact with, hear, and taste history in heritage gardens.

# HISTORIC TUMACÁCORI ORCHARD

The Mission Tumacácori was established by Father Kino at the site of an O'odham village in 1691. Kino brought more than just his religious beliefs with him; he also brought plants and animals that would soon colonize the New World. Kino's introduction of Old World species into the New World earned him the respect and adoration of the O'odham people, and helped to create a peaceful transition for the Spanish settlers in the Pimeria Alta. They saw that this new religion came with many material benefits, and this helped with their conversion. As part of the Kino Heritage Fruit Trees Project, the Historic Orchard at Tumacacori National Monument has researched and established a genetic legacy of original root stock rediscovered in backyards and fields in Southern Arizona and Northern Sonora, initially brought by the Spanish. Five acres of Spanish-introduced fruit trees were planted by volunteers (Nps.gov). This interpretive effort is encouraged by the National Park Service and the United States Congress, who are supporting efforts to showcase more locally-produced heritage products as a part of the Park Service's mission.

## Design Implications

Growth can be encouraged in heritage garden practices by featuring heritage foods at visitors centers and festivals associated with the park (Nabhan 2010). Some heritage species can be grown for other uses besides nutritional; for instance, gourds used for carrying water, or devil's claw pods grown for the use of their skin in basketweaving. Heritage crops in the Southwest can serve to highlight Mexico's role as the earliest center for agriculture in the New World, and can reconnect these two neighbors historically and culturally. Heritage gardens can show how each group that immigrated to the area brought their own food traditions with them. It is also important to coordinate with local volunteers and organizations to accomplish large goals for the park. These orchards highlight crops from original genetic stock that were hiding in plain site in the Pimeria Alta, and creating additional habitats for this genetic legacy can help to ensure their survival.

# HUBBELL TRADING POST

The Hubbell Trading Post is the oldest continuously-operated trading post on the Navajo Nation. The building and surrounding land was purchased in 1878 by John Lorenzo Hubbell, who turned it into a trading post to serve the surrounding Navajo Nation. He also encouraged a significant trade in Navajo rugs and silver products, and the Hubbell family operated the site until it was sold to the National Park Service in 1967. Historically, Navajo farmed the site, utilizing irrigation built at the site and in nearby Ganado, and the current park has integrated orchards, gardens, pastures and fields, also dealing in wool, piñon nuts, and other items produced by local Navajo families (Nps.gov). They also work to support the cultivation of Churro sheep, an important source of income and a culturally important species to the Navajo. Hubbell Trading Post National Historic Site is part of a greater context of Navajo heritage sites in the area, including Canyon de Chelly National Monument and Navajo National Monument.

## Design Implications

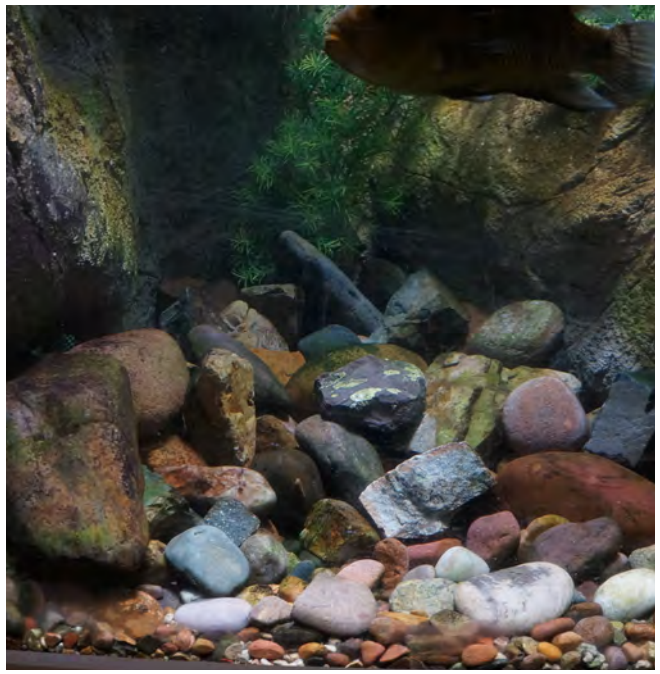
Cultural and historic sites can support local farmers and families by including them as part of the interpretation efforts. As part of an accurate representation of historic agricultural practices, it is important to present a full picture of the crops and livestock raised at the site. Historic agricultural practices can also be practiced at the site currently to aid in interpretation and understanding. Creating a connection between the site in question and other cultural and historic sites in surrounding areas can help to increase the overall interpretive effort, and can enhance visitation to all of the included sites. It is important to recongnize that no cultural or historic site exists in a vaccuum, and to include the context, where it is possible and appropriate, to more accurately represent the history of the area.

# FOUR MILE HISTORIC PARK

Four Mile Historic Park was once a farm and a stage stop along the Cherokee Trail, the last stop before the traveler would reach Denver. Today, the park is surrounded by city and suburbs in a dense urban matrix. The main house on the site was built in 1859, and passed through several hands, acting as a stage stop and farm, until 1975 when the City of Denver purchased the house and remaining 12 acres of property, and turned the farm into a city park. The park today is a living museum, demonstrating Denver's pioneer past, with events and programming held throughout the year. Although the park is owned by the City of Denver, it is managed and run by the nonprofit Four Mile Historic Park, Inc., and is supported by a strong group of volunteers. Though the park itself is a historic destination, it is also a landmark along a system of bike and walking trails that travel along Cherry Creek and throughout different areas within the City of Denver. This trail system ultimately connects to a series of trails that travel throughout the entire Denver metropolitan area. Visitors can see kitchen gardens and sniff the herbs; bake bread in wood-fired stoves; feel the heat of the forge where the blacksmith works; or fill the washtubs with water pumped from the well. The site is not just used for education; it hosts art shows and weddings, family reunions and corporate events, all in a historic, agricultural setting (Hartmann 1998). It serves as an important landmark for the city of Denver, but also as a moment in history preserved. The human interest is what draws us to the place, not just a presentation of discreet historic objects lacking in any social context.

### Design Implications

The location of the park next to a large, vibrant urban area provides a large pool of potential visitors, especially schools and other groups that visit annually. The 'living history' component makes literal the connection between the past and the present, providing the visitor the chance to use all of their senses to experience the past. Programming opportunities, as well as the ability to rent out whole or partial sections of the park, make it more than just a historic and educational destination. A project can be owned by the city/state and managed by an entirely different operation. The location of the park is along recreational trails which brings a wide variety of disparate users to the area. Emphasize the people in the story; that is what visitors will ultimately connect to.



# ARIZONA SONORA DESERT MUSEUM

The Arizona Sonora Desert Museum is not just simply a botanic garden or a wildlife exhibit. It combines elements of a zoo, art gallery, botanic garden, aquarium, and natural history museum, all in one site, in order to represent the lushest desert in the world: the Sonoran Desert. The museum itself was founded in 1952 to showcase the plant and animal species in the desert together in ecological exhibits. It is recognized as one of the top ten zoological parks in the world, and currently ranks AS the #9 museum in the world overall on TripAdvisor.com. The park covers 21 acres, showcasing  320 animal species and over 1,200 different species of plants. The park is owned by Pima County, but is managed and run by the museum. The park features special exhibits not seen in other botanic gardens, such as a birds of prey demonstration that takes place almost daily. Today the park is more than just a destination; it hosts research efforts, education programs, and exchanges with museums and professionals in Mexico. Early interpretive exhibits included one demonstrating the importance of water and water conservation in the desert, making the Desert Museum an early pioneer in water conservation and education efforts. The Desert Museum also runs interpretive exhibitions, intended to showcase the ethnology of the region, bringing in demonstrations like Tohono O'odham basketweavers who work next to the materials that they use for their baskets (Desertmuseum.org).

## Design Implications

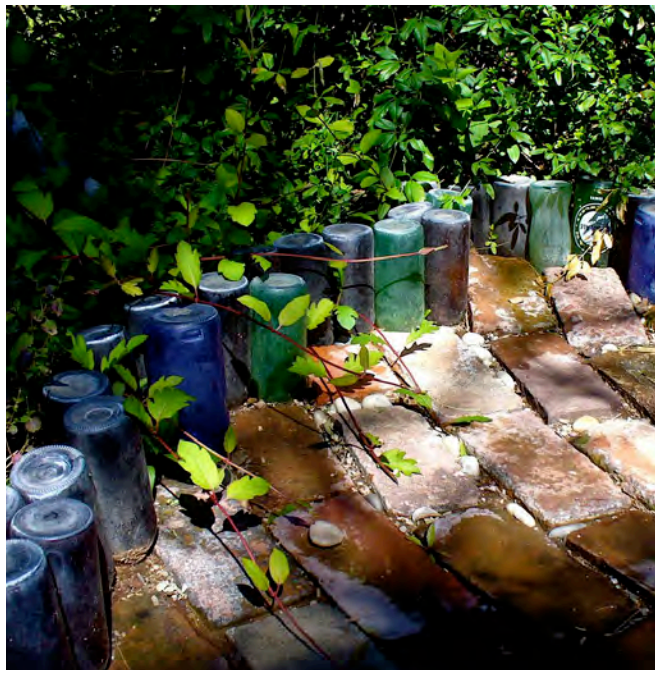
Showcasing the context of a plant or animal species helps to aid a visitor in understanding the unique desert ecosystem. Land on which a historic or cultural asset is located can be owned by one governmental entity, and still managed by another, or by a private foundation or organization. Well-trained docents create the opportunity for visitors to have a more in-depth experience of the site. Ethnology and ecology don't have to be presented as separate entities; they can complement each other, and can strengthen the educational message of both areas.

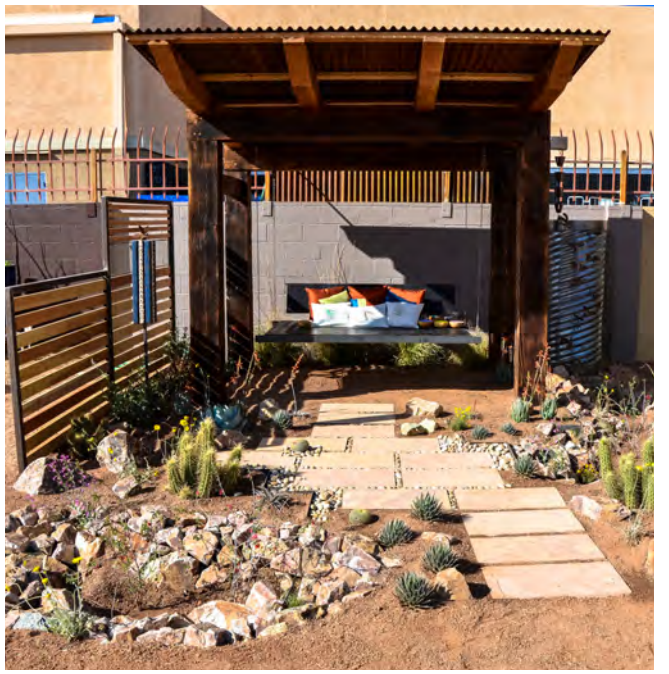
# DESERT BOTANICAL GARDEN

The Desert Botanical Garden in Phoenix, Arizona is a 140 acre garden designed to showcase the plants and animals of the desert, as well as providing research and interpretive exhibits. Only by communicating the unique attributes of the desert can this important ecological niche be preserved. Festivals and special events are held at the park, as well as educational experiences for a wide variety of visitors. According to the garden's website, "The Garden's commitment to the community is to advance excellence in education, research, exhibition and conservation of desert plants of the world with emphasis on the Southwestern United States. We will ensure that the Garden is always a compelling attraction that brings to life the many wonders of the desert" (Dbg.com). The interpretive exhibits are incorporated into the trail system of the park, using traditional materials, structures, artifacts, and plants to communicate a full picture of life in the desert for people, animals, and plants alike.

## Design Implications

Volunteers are essential in the day-to-day operations of the garden, especially for an organization that is not-for-profit. Preservation, education, and conservation all go hand-in-hand, and are essential elements to the overall operating goals. Programming and multiple uses help guarantee the future of the space and can offer an economic boon as well. Offering classes and other educational opportunities give visitors familiarity with the park and its mission, even if they're not visiting in person. Incorporating ethnobotanic features fully into the fabric of the site can lead to a fuller visitor experience.





# TUCSON BOTANICAL GARDEN

The Tucson Botanical Garden is a small botanical garden located in the heart of midtown Tucson, Arizona. According to their mission statement, "The Tucson Botanical Gardens promotes responsible and appropriate use of plants and water in a desert environment through education and demonstration and provides a place of beauty and tranquility for Tucson residents and visitors" (Tucsonbotanical.org). Within the larger garden, there are smaller areas that focus on specific representations of history and culture, including a historic garden, Native American crop garden, Tohono O'odham Nation garden, and a Hispanic Heritage Garden. Each of these separate areas highlights the unique features and challenges of growing food and other plants in the desert southwest, and tells a greater story of agriculture and garden cultivation in southern Arizona. In addition to the planted exhibits, the Tucson Botanical Garden also offers meals in a small on-site café, a gift shop, butterfly houses, and other amenities. The site is also available for rental for small events and other uses.

## Design Implications

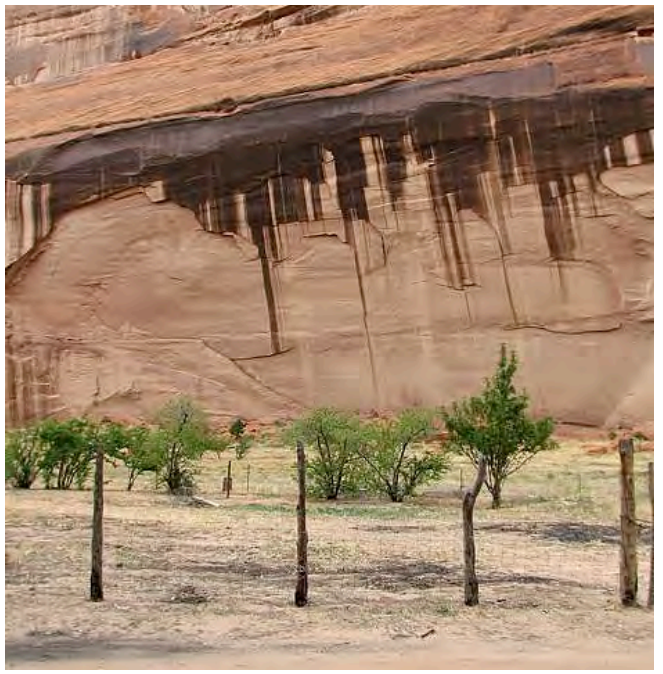
With smaller spaces, it is possible to demonstrate many different aspects of culture and history with disparate, smaller gardens, and still contribute to the overall story. It is also possible to create many smaller exhibits within a small amount of allotted space. Diversifying the park into different income-generating spaces helps contribute to its overall economic success. As the Tucson Botanical Garden is located in the middle of the city of Tucson, surrounded by residential and commercial properties, it provides an oasis in the city, as well as taking advantage of a large potential user base from which to draw.


# TOHONO CHUL PARK

Tohono Chul Park is a botanical garden and interpretive center located north of Tucson, Arizona. The park was formally established in 1985, and contains a botanical garden, as well as gift shop, nursery, and café. The park is dedicated to highlighting the survival skills that the people, plants and animals of the desert have adapted to thrive in the Sonoran desert environment, inspiring people who live nearby to live in the desert, instead of just next to it. Their primary focus is on the "natural and cultural connections" (Tohono Chul: The Official Guide), which makes it unusual in the region. The grounds contain ethnobotanic gardens, a desert riparian area, and a demonstration garden containing ideas for local homeowners to embrace their desert environment. Though the site is preserved as a park today, it once was home to early settlers to Tucson and their citrus plantations, and archaeological evidence at the site suggests prehistoric occupation as well.

## Design Implications

It is important to emphasize the connection between the plants and the people of the southwest deserts for a fuller understanding of the history of this region. Although this site contained artifacts from the Hohokam culture, they are not well displayed or interpreted, so visitors may not be aware of the prehistoric inhabitants of the site. A park can be used to display more than just living material; the geology wall displays the geology of the local area, and interprets a more abstract story of what lies beneath visitors feet.



# CANYON DE CHELLY

Canyon de Chelly is located on the Navajo Nation in northeastern Arizona. Native Americans have lived and farmed continuously in Canyon de Chelly for nearly 5,000 years, taking advantage of rich, fertile alluvial soils and a reliable source of water. The ancestral occupants were called the Puebloans, and were succeeded by their descendants, the Navajo and the Hopi, who continue to farm in the canyon bottoms. Canyon de Chelly National Monument today sits on the Navajo Nation and is administered by the National Park Service, in conjunction with the Navajo National, as well as the 40 Navajo families that still live within the park boundaries (Nps.gov). The agricultural heritage at this National Park Service-managed site is interpreted by Navajo staffers, who highlight the agricultural traditions of the families that still raise crops and livestock there.

## Design Implications

The design of a site does not just have to be informative; it can also be a source of livelihood for local families. Sites can preserve and interpret agricultural and archaeological heritage as part of a larger cultural history. The park does not offer much in terms of active interpretation or programming, just a static monument. This site is part of a larger cultural context, with links to nearby Hubbell Trading Post and Navajo National Monument, and creating these linkages between sites of cultural and historic importance can increase visitors to all sites, as well as an enhanced understanding of the history and culture of the area.

# HOMOLOVI RUINS

Homolovi Ruins State Park is located near Winslow, Arizona, close to the Little Colorado Rive. The park contains many archaeological sites, including 4 major pueblos, and a number of smaller sites and artifacts. Heavy looting was a problem in the 1960's, and because of concern about the integrity of the site, the Homolovi State Park was established in 1986 by the Arizona State Legislature to protect these cultural resources. Reconstruction was a common practice in the Southwest, especially during the reign of the WPA, but the Hopi believe that preserve-in-place is a preferable treatment option, and Arizona State Parks also prefers a non-intrusive approach. Preservation of the site is important to future professional and public education. This preservation process is "concerned with curtailing or mitigating factors that have an adverse effect on the integrity and condition of all aspects of a ruined site, including the architecture, all cultural materials and deposit, and the location of the ruin" (Neal 2004:235). Site burial tends to be the most efficient way to accomplish this preservation goal, especially in instances where proper maintenance and interpretation is a problem. Erosion can pose a problem to reburial efforts, but vegetation and a mitigation of erosion factors such as wind and water can largely minimize this issue, which then requires little subsequent maintenance. This is the preservation treatment that was eventually put into place at Homolovi, after excavations and documentation were concluded.

## Design Implications

Sites that contain archaeological remains need to be able to protect those remains in instances where they cannot be adequately maintained and interpreted to the public. Also important to take into account factors that can affect reburied remains, such as wind and water erosion, while vegetation efforts can help to stabilize the soil. Stabilization and preserve-in-place is preferable to reconstruction, especially on Hopi or other ancestral sites. Arizona State Parks system prefers a non-intrusive approach to site preservation.

# FRUITA RURAL HISTORIC DISTRICT

The Fruita Rural Historic District is part of the larger Capitol Reef National Park in southern Utah. The town of Fruita was established by Mormon settlers in the late 1800s at the junction of the Fremont River and Sulphur Creek, allowing seasonal agricultural cultivation. The orchards at the site, planted by these early Mormon settlers, are almost all that remains of the original town of Fruita. The general management plan for Capitol Reef considers the orchard a historic landscape, and thus plans to preserve them. The orchards contain nearly 3,000 trees (cherry, apricot, peach, pear, plum, walnut, mulberry, and more) that are managed by the Park Service and are offered to local residents and visitors on a pick-your-own basis, where fruit consumed within the orchard is free; the only charge is for fruit taken out of the orchards. This site falls under the National Park Service and Congress' appeal to increase the amount of heritage products being produced on Park Service land. The pick-your-own orchard is a major destination, not only for those who would typically visit a National Park but for those who are interested in having a taste of this unique piece of history.

## Design Implications

It is important to reflect the full picture of heritage farming in an area, if it existed. Allowing visitors a taste of history connects them viscerally with the past and the pioneers who brought these fruit trees to the desert, and creates a more interactive interpretive environment. A potential problem and liability is could be created by allowing visitors to pick their own fruit. It also represents a problem in terms of upkeep and maintenance.

# PRESIDIO SAN AUGUSTÍN DEL TUCSON

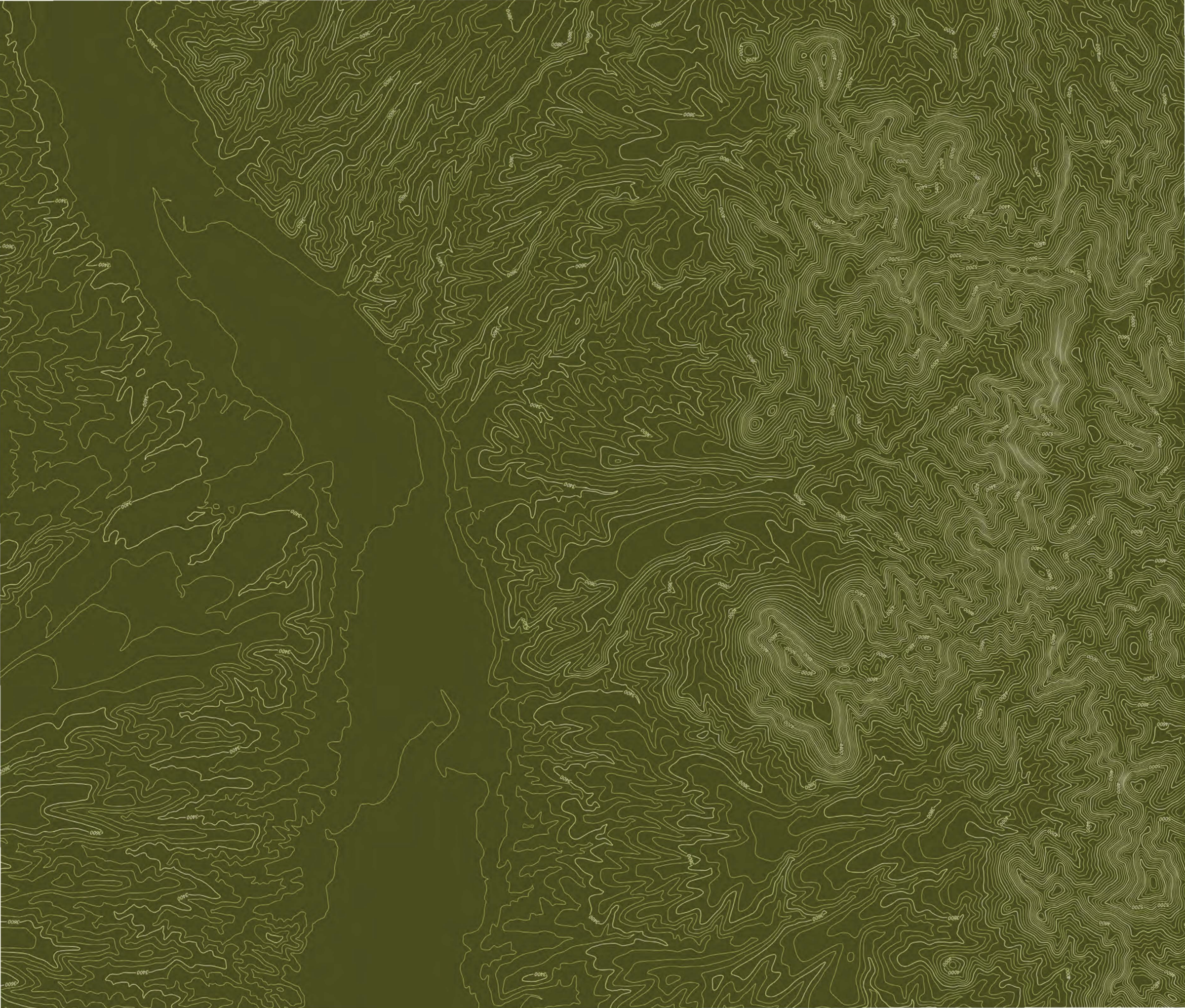
The original Tucson presidio was established by Army Lt. Hugo O'Connor, after the presidio at nearby Tubac was abandoned, in 1775. Many of the settlers from Tubac had left with de Anza to found the new colony in San Francisco, but those who remained largely moved to the earthen encampment up north. After the fort suffered a heavy Apache attack, high adobe walls were constructed to repel the invaders. The remains of the fort are located in the center of modern Downtown Tucson, where it had been largely torn down. Archeological excavations in 2006 revealed prehistoric pit houses as well as the original foundation for the presidio. Some portions of the fort were reconstructed, including a Territorial-era house, and a mural was painted to interpret the history of the fort. Today the presidio offers programming for interpretation, including school programs, living history days, and the "turquoise trail" that stretches out into the surrounding City of Tucson.

## Design Implications

Reconstruction efforts need to be either fully realized or not at all – half-effort just dilutes the interpretive message. Programming, especially for school groups and other annual visits keeps the flow of visitors coming. Interpretive efforts that incorporate nearby exhibits and sites needs to be well-executed. A historic site that is part of a greater context in a city or town has a built-in user base, but needs to look at strategies to draw visitors in who othermise just walk past the site every day and not know that they are missing.

# SITE INVENTORY

# + ANALYSIS

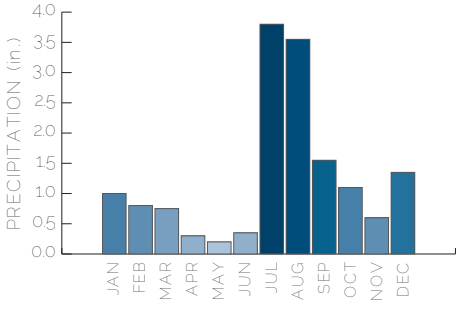


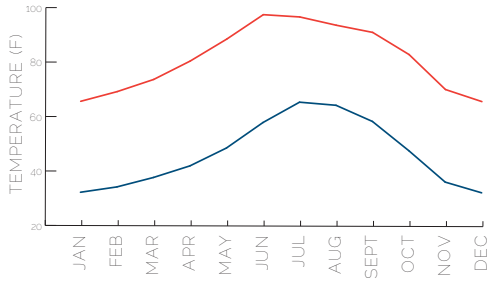
# SITE ANALYSIS

The historic site of the Presidio del Tubac, as well as the current town of Tubac, is located in the Santa Cruz River Valley in Santa Cruz County, Arizona. The Santa Cruz River Valley is a narrow alluvial plain, surrounded on all sides by a succession of mountain ranges, the most prominent being the Santa Ritas, but also the Tumacacori and the San Caytano Mountains. The Santa Cruz River has its headwaters in the Patagonia Mountains in southeastern Arizona, before flowing south briefly into Sonora, Mexico, before it turns North and crosses the border back into the United States. The Santa Cruz no longer has perennial flow above-ground (some question whether it ever did), but the below-ground stream supports a dense riparian habitat along its banks, until it reaches an eventual terminus a little north of nearby Tucson.

The Santa Cruz River has long supported human, animal and plant communities along its banks, and its semi-regular flooding supported prehistoric agriculture in the surrounding fields. The Presidio at Tubac was built just above the flood zone from the Santa Cruz River at the time, and today the Santa Cruz River does experience flooding (the last significant flood event was in 1993) though it mainly affects the low-lying areas immediately adjacent to the river, including agricultural fields and the Tubac Golf Resort.

Tubac and the Santa Cruz River Valley are part of the greater Sonoran Desert region of southern Arizona and northern Sonora, Mexico. The upper Sonoran Desert is characterized by long, hot days and cool nights (even dropping below freezing in the winter), and receives less than 12 inches of rain annually, spread between the larger summer monsoons and the softer winter rains. This is a unique condition for the desert, and the Sonoran Desert is the only desert in the world that has two separate rainy seasons, which contributes to its unique lushness amid other desert biomes.



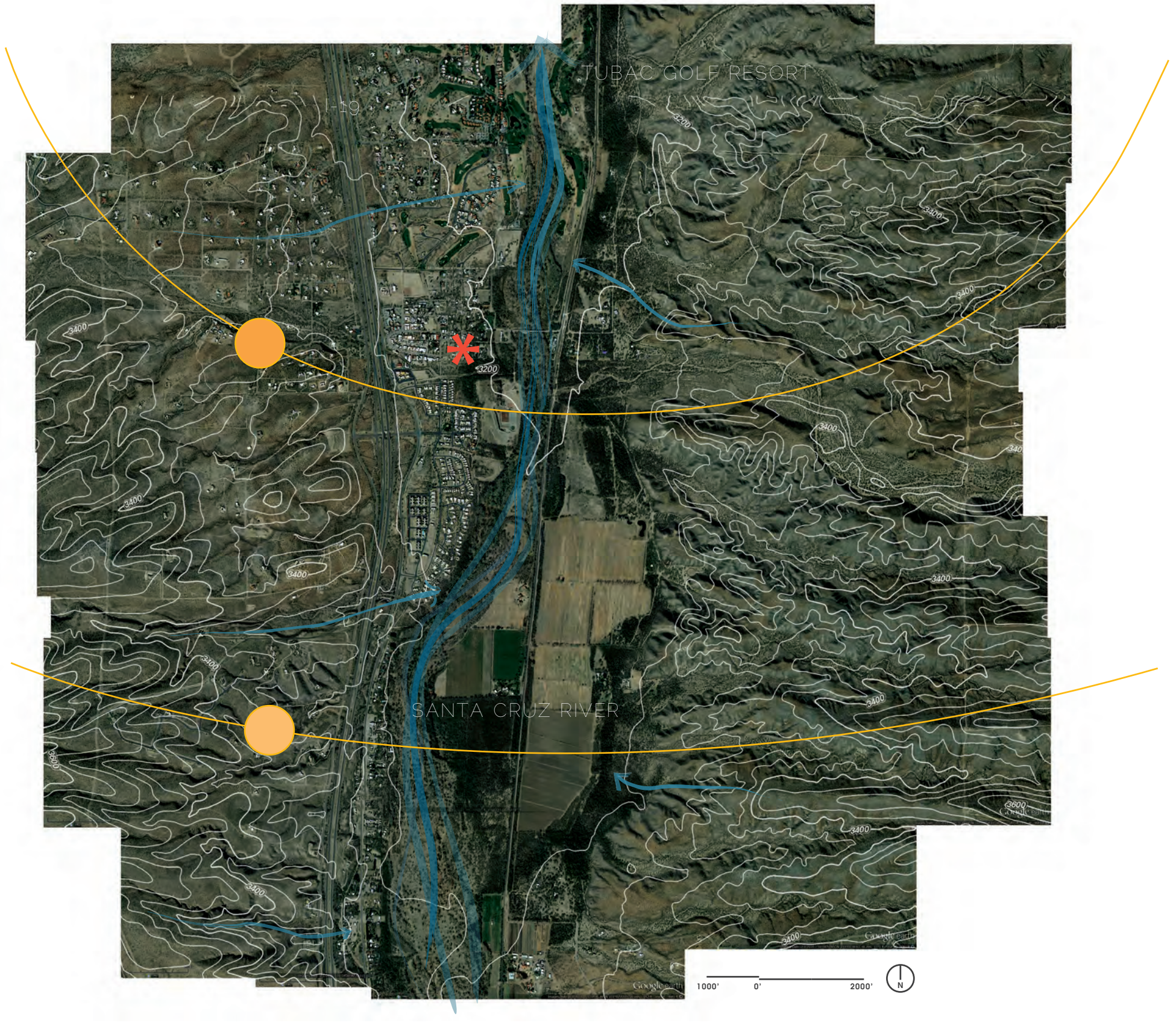


The Santa Cruz River after a storm.

The Santa Cruz River may not flow perennially and may be underground for most of its journey, however, unique geologic conditions linked to a confluence of bedrock near Tubac, forcing the water from the shallow alluvial sand to the surface for a short period. This supports a dense cluster of riparian habitat, which in turn supports birds, frogs, and other wildlife. It also made for an appealing site for human occupation in a desert otherwise largely bereft of water.

The town of Tubac itself is approximately 11 square miles in size, and has a population of 1,191 people as of the 2010 census (American Fact Finder). It is located in Santa Cruz County, Arizona, which has a total population of 47,420 people as of the 2010 census, 20,837 of whom live in the larger city of Nogales, the largest city in Santa Cruz County. Santa Cruz is a relatively moderate economic area; the annual median household income is $37,692 and 26.8% of the population lives below the poverty line (American Fact Finder). The largest industries in the county are mining, cross-border trade, service and retail, and some tourism, especially in the village of Tubac.

The Tubac Presidio State Park welcomes visitors largely between the months of January and March, when the temperatures are at their most ideal and the winter residents in nearby Green Valley, Rio Rico, and Tucson are established for the winter.


TUBAC GOLF RESORT
I-19
SANTA CRUZ RIVER
3400
3200
3600
1000'
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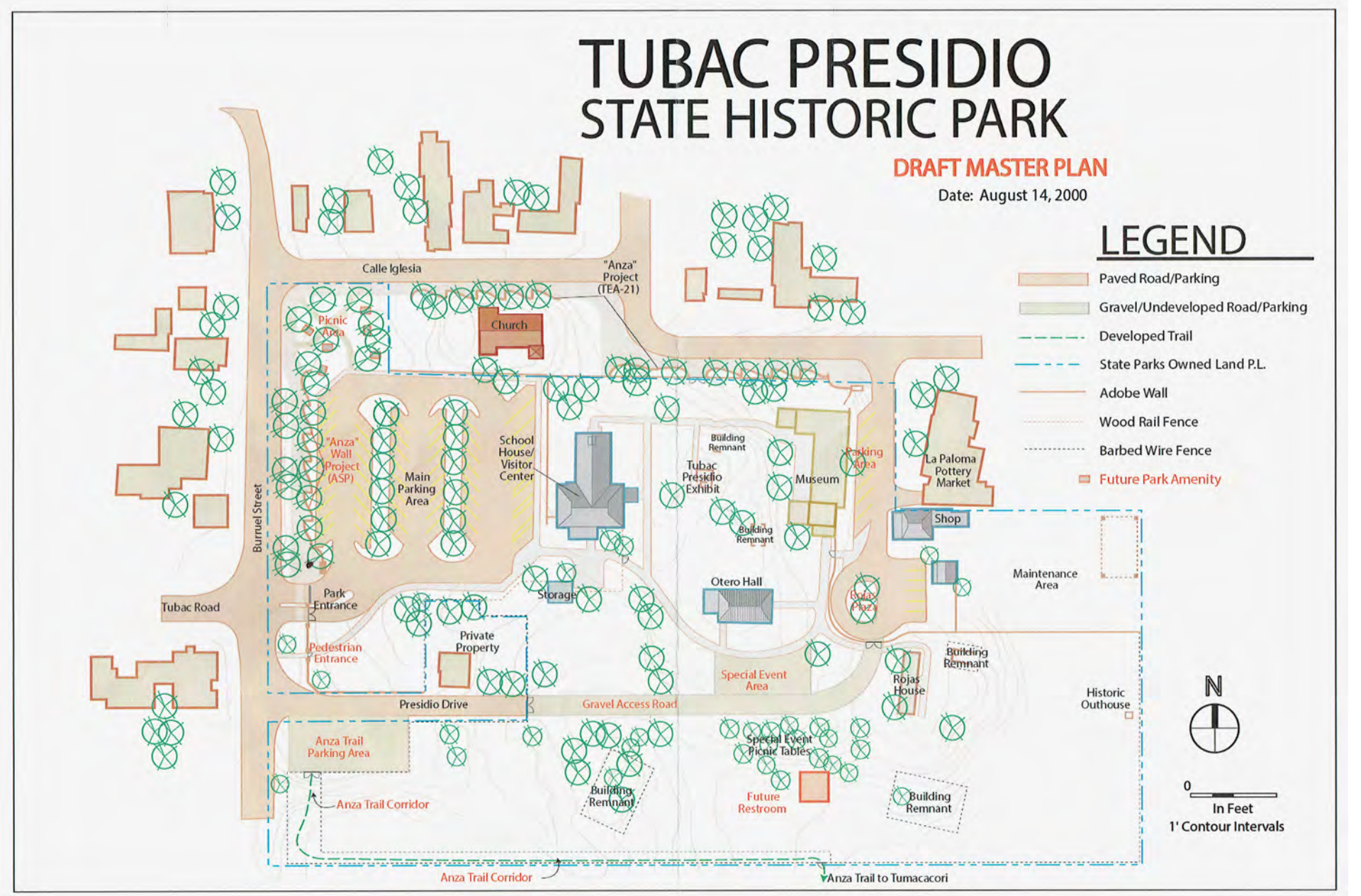
2000'
N


TUBAC PRESIDIO
STATE HISTORIC PARK
DRAFT MASTER PLAN
Date: August 14, 2000
LEGEND
Paved Road/Parking
Gravel/Undeveloped Road/Parking
Developed Trail
State Parks Owned Land P.L.
Adobe Wall
Wood Rail Fence
Barbed Wire Fence
Future Park Amenity
Calle Iglesia
"Anza" Project (TEA-21)
Church
Picnic Area
"Anza" Wall Project (ASP)
Main Parking Area
School House/ Visitor Center
Burruel Street
Tubac Road
Park Entrance
Pedestrian Entrance
Private Property
Storage
Presidio Drive
Gravel Access Road
Anza Trail Parking Area
Anza Trail Corridor
Building Remnant
Tubac Presidio Exhibit
Museum
Parking Area
La Paloma Pottery Market
Shop
Building Remnant
Otero Hall
Maintenance Area
Special Event Area
Rojas House
Building Remnant
Historic Outhouse
Special Event Picnic Tables
Future Restroom
Building Remnant
Anza Trail Corridor
Anza Trail to Tumacacori
N
0
In Feet
1' Contour Intervals

# PHOTO INVENTORY

A photographic inventory communicates the existing site conditions and structures in a way that nothing other than an actual site visit can accomplish. Especially important for clearly communicating specific problem and experiences for the visitor within the site, a photographic inventory can also freeze the site at a specific point in time, allowing for a useful point of comparison between existing site conditions and future proposals.

This photographic inventory is not intended to be an exhaustive representation of the site as a whole; instead, it intends to highlight specific conditions, amenities and views, while giving an overall feel for the site and its context. These site views are broken up into zones and try to accurately represent to variety of views from any one specific area within the park.

This inventory was conducted in May, after the accumulated moisture from the winter rains had evaporated and before the summer monsoon season had started in earnest. Though this is not the high season for visitors to the park, it highlights many of the issues to be addressed; lack of shade and microclimate, and a general lack of designed spaces connecting each destination within the park to each other.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ENTRANCE
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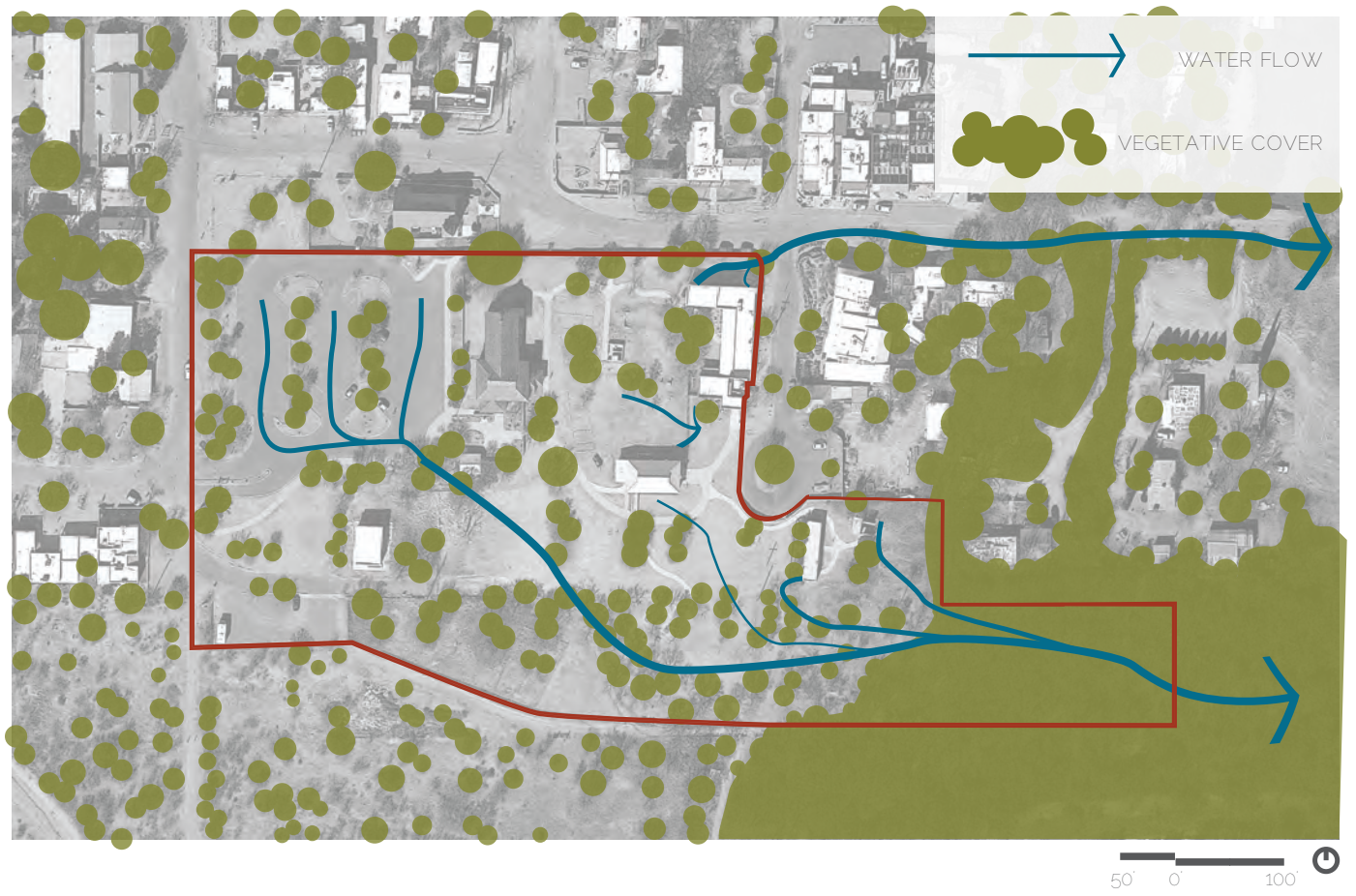
# SITE CIRCULATION


The main entry to the Tubac Presidio State Park falls at the end of a street that runs through the village of Tubac. This entry area is geared towards vehicles primarily, while a pedestrian path provides access along the parking lot entry. The entry sequence is generally undefined, with small concrete adobe walls displaying signage focused on attracting drivers. Additional vehicular access is located at the east end of the site, with overflow parking and maintenance facilities for the park and the De Anza trail.

Visitors enter the park at the terminus of the parking lot, entering through a building housing the visitor's center, and then out a door into the park itself. Site circulation throughout the park is generally comprised of paved concrete paths for ADA accessibility, with some dirt paths leading to less utilized areas of the site. This also serves to discourage visitors from straying off of the paths into areas that may contain archaeological remains or plantings. Circulation currently leads between buildings in no particular order, as the park and buildings were assembled at different times.

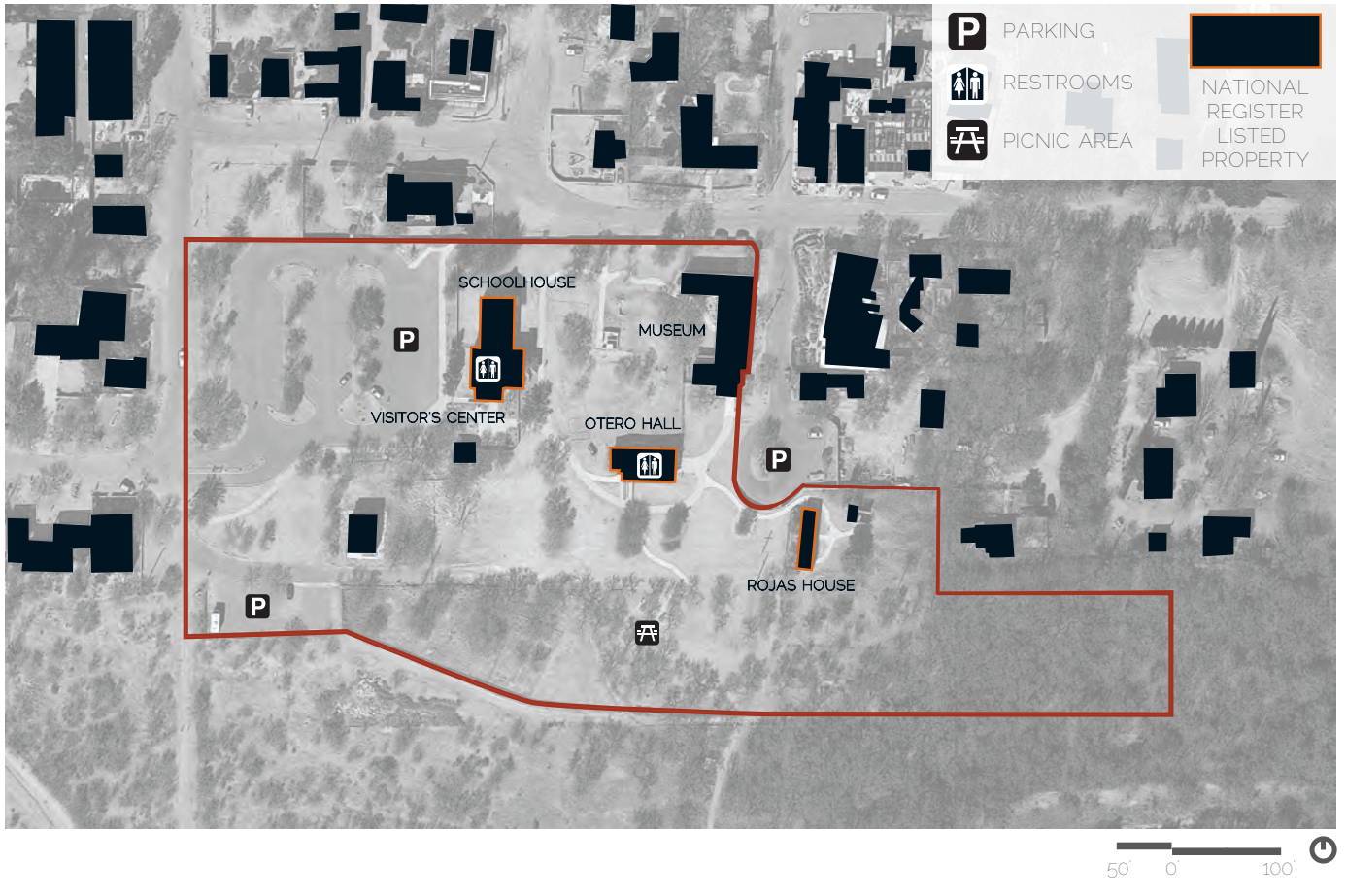
# HYDROLOGY + VEGETATION




The original Presidio was located on the alluvial plain of the Santa Cruz River, just above the flood zone. The site itself gently slopes to the east, back to the Santa Cruz River. The highest concentration of runoff is creating from the asphalt paved parking lot, which directs stormwater into a drain and then a channelized earthen ditch through the southern portion of the site. Areas of smaller runoff are directed to the corners of the park, and then off-site. Drainage is of most concern near the historic adobe buildings, which are susceptible to basal erosion if the runoff is not directly correctly away from the building foundations. Drainage off of nearby buildings creates an opportunity for water harvesting demonstration.

Vegetation is varied across the site; where the water drains is where most of the mesquite and other bushes are concentrated. Immediately after the summer monsoons is when these 'weeds' become more of a problem. Although there are some large trees throughout the site, they do not provide adequate shade for visitors, except in the picnic area. Vegetation is largely native, except for in garden areas that have been specifically designed.

# BUILDINGS + AMENITIES




Many of the buildings on the site are historic and have been placed on the National Register of Historic Places. These buildings vary widely in construction method and preservation status, but all contribute to the story of the development of the site. Some are used solely for historic display, but other buildings on-site house the visitor's center and special events. These three buildingd include the Territorial Schoolhouse (1885), which is part of the Visitor's Center complex and used for educational and interpretive purposes; Otero Hall (1914), which is used for events and art shows, among others; and the Rojas House (1890), which is a well-preserved example of a Sonoran-style row house, typical of this era and area, which has re-created the experience of living in one of these Sonoran row houses up until the previous occupant left, somewhere around the 1950's.

The park has two sets of restrooms and anticipates the need for more in the near future. The main parking lot can accommodate most visitors, while an overflow parking lot on the east side provides additional spots if needed.


# ARCHAEOLOGICAL REMAINS


The remains of the Presidio are the only archaeological area that have been excavated; the central area remains undeveloped because of the potential to yield archaeological information beneath the soil. Smaller archaeological sites are scattered throughout the park and are in varied states of ruin; most are built of adobe and, exposed to the elements, continue to erode. They are not well-presented or interpreted and exist in heavily vegetated areas behind wire fence.

# DESIGN

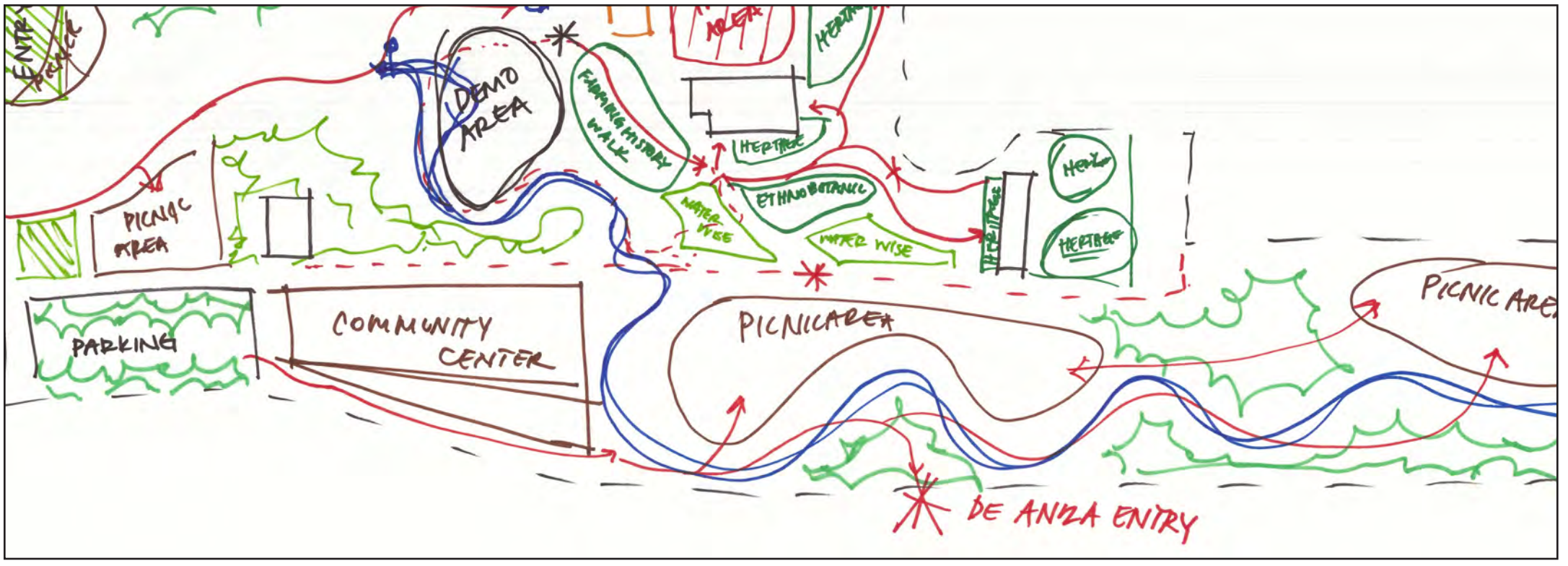
# APPLICATION

# CONCEPT DEVELOPMENT

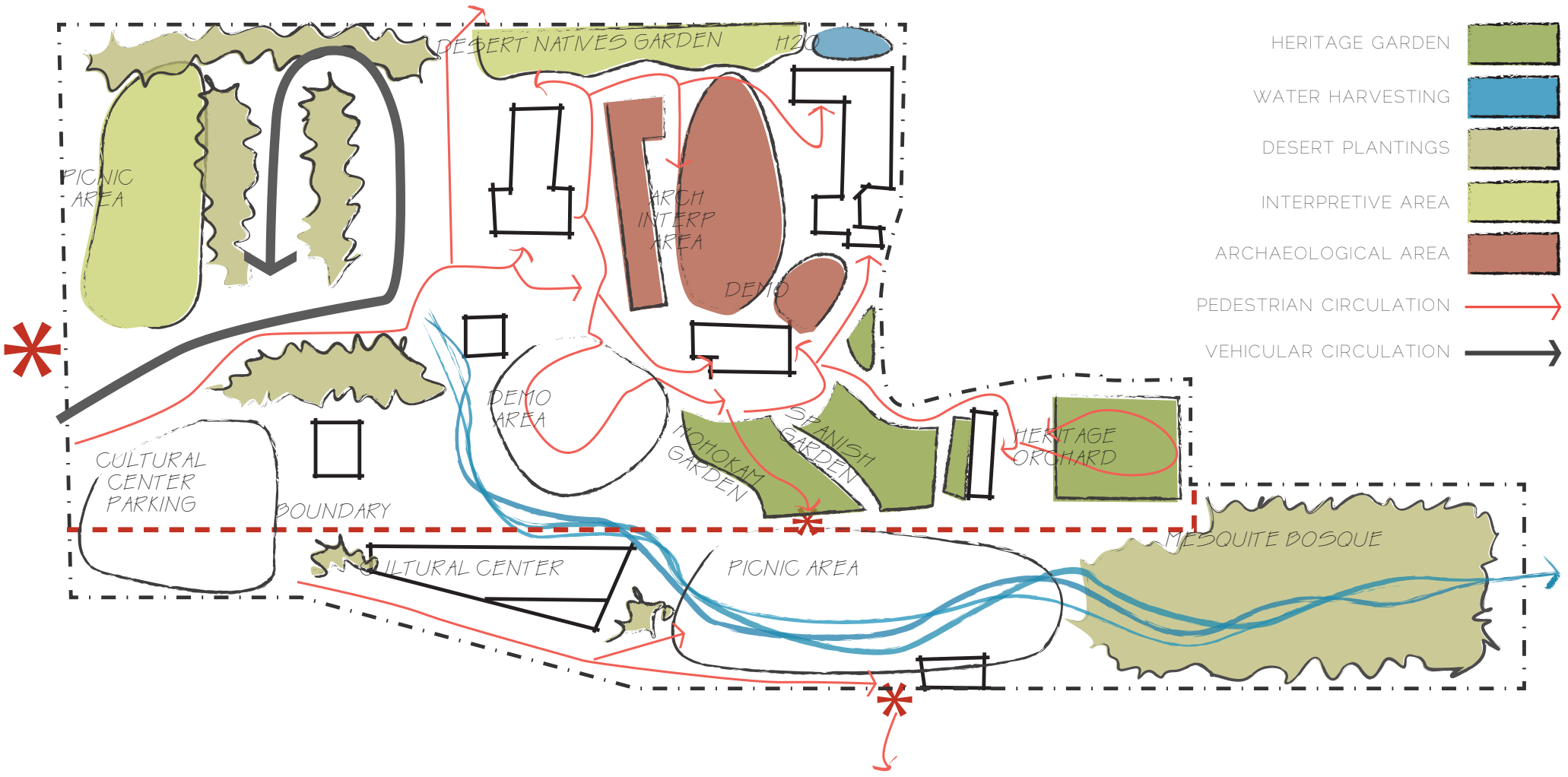
Concept development is an important step in the overall design process. An exploration of ideas generated by the literature and case reviews, it is an opportunity to put pen to paper and see how different ideas and design approaches can be applied to the site in question. The process is intended to consider existing site conditions, programmatic requirements, and other factors into an organized, exploratory look into design possibilities for the site solution. Especially within the confines of an existing site and layout, it is important to look beyond what currently exists, and try to meet current and anticipated programmatic needs.

Concept development combines aspects of the literature review, case studies, and site analysis to create a cohesive whole that attempts to address different opportunities and challenges across the site. Each concept can specific conditions, but may incorporate all program elements and site conditions. A final concept will incorporate strengths and weaknesses from the individual concepts to address the most pressing needs and concerns about the site, while providing a framework for the site design to come.

This process is iterative and an exploration of spatial ideas, all of which may or may not be incorporated into the final concept but can be evaluated on an individual basis to determine whether or not it is the preferred design solution. From a final concept, a site design can be undertaken in greater detail and focus.

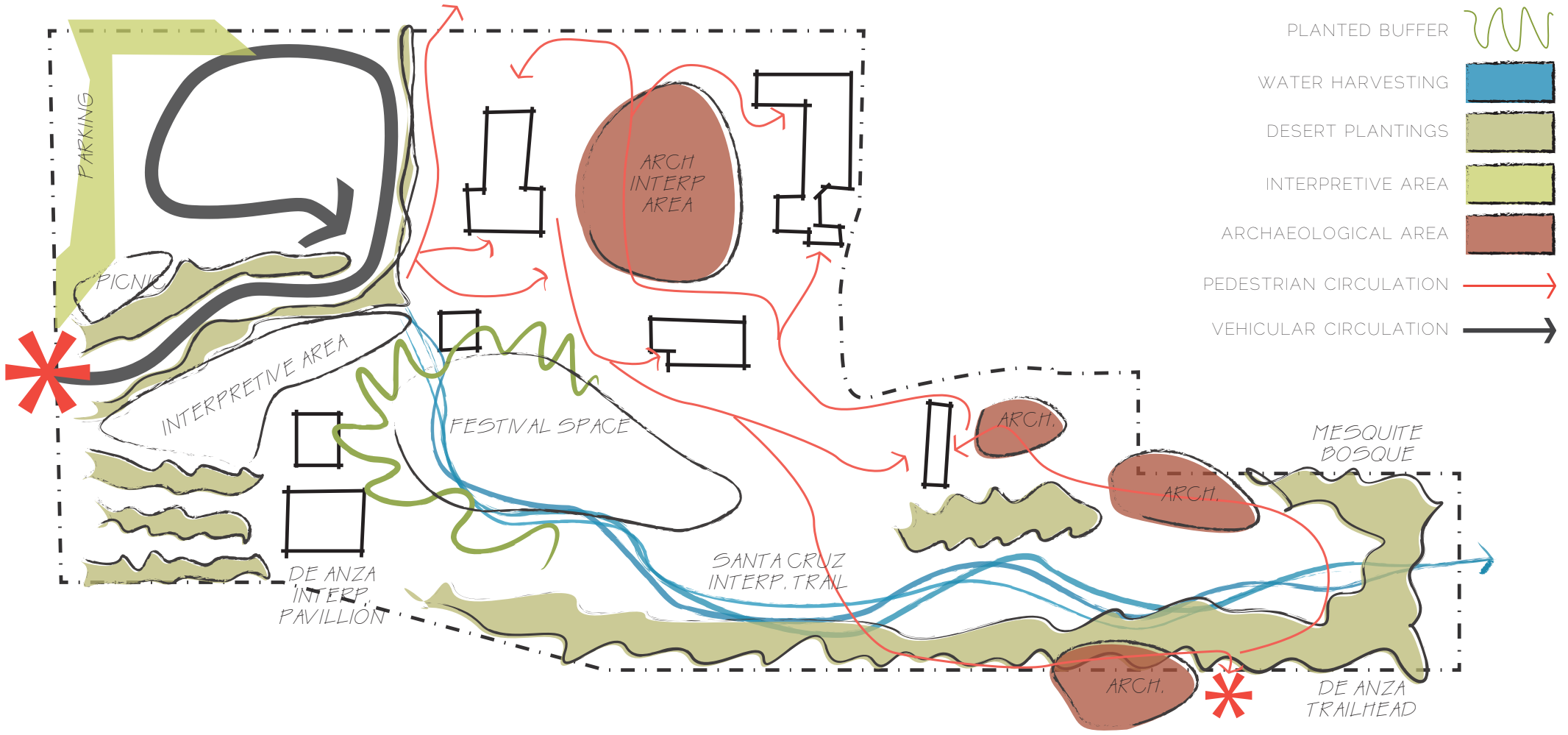



PARKIN




# CONCEPT ONE | OF TWO MINDS

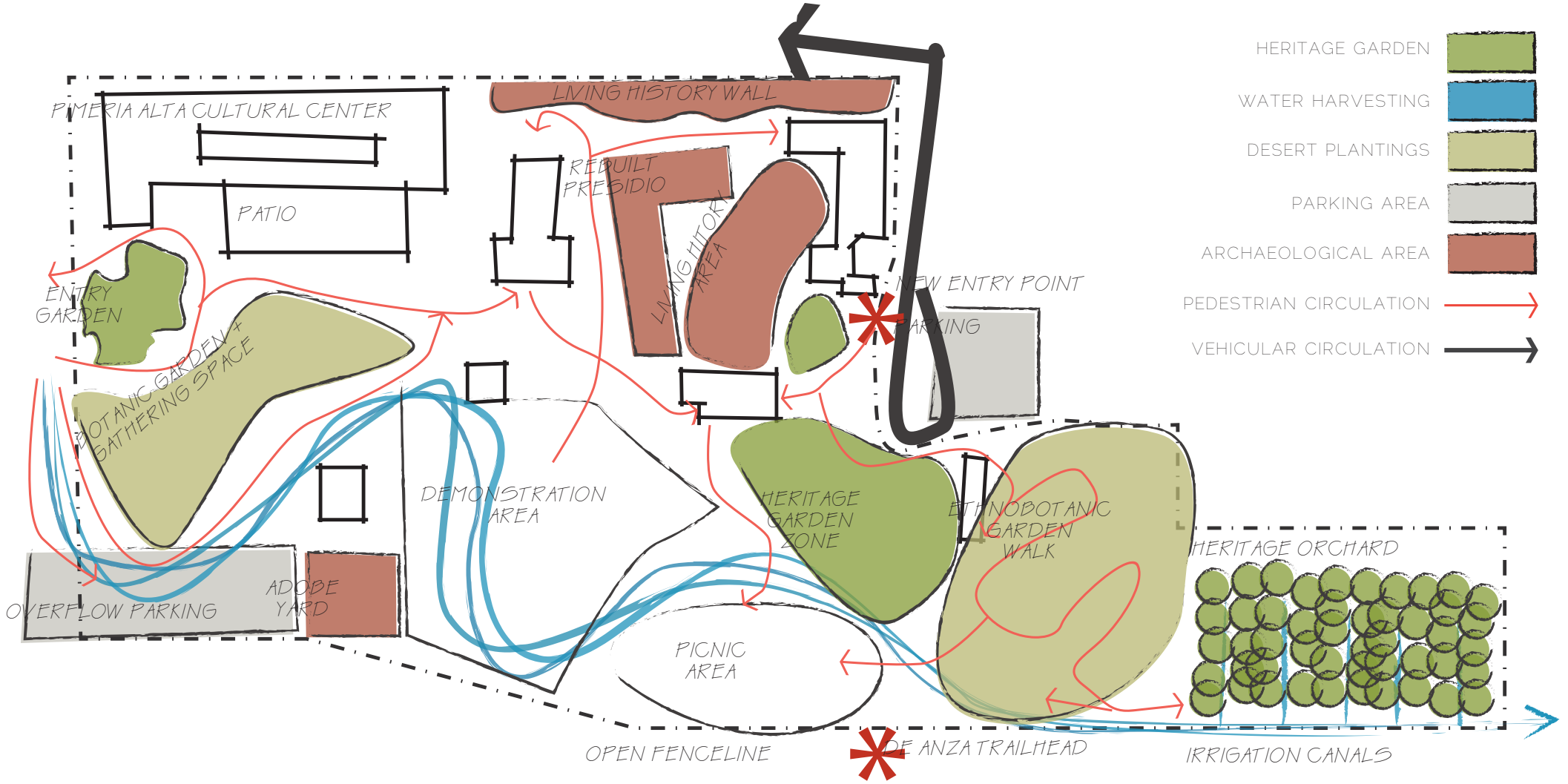
The first concept, 'Of Two Minds', conceives of the park in two parts; one, an enclosed, pay-for-entry historic park showcasing archaeological remains, the museum, and other preserved buildings and interpretive areas, and the second, a publicly accessible area, including parking, picnic areas, interpretive trails, and a community center. The historic portion of the site incorporates more planted areas, including ethnobotanic and heritage gardens, especially highlighting the cultural remains of the prehistoric occupants of the area. The pathways and gardens also seek to create connections between the buildings, not just pathways from one to the other. Enhanced interpretive areas and demonstration areas can be used for living history recreations and other events. A water harvesting area runs through both section of park, gathering stormwater from parking lot runoff to create a riparian interpretive area that visually and metaphorically connects the park to the Santa Cruz River, and can serve to interpret the river within the boundaries of the park. The more public side of the park will create public areas that are accessible and can connect the park to the community, as well as providing space for events and other rentals. The community center will serve as that indoor rental space, and families can use the picnic areas on the weekends. An interpretive pavilion is proposed for the intersection of the site and the De Anza Historic Trail, establishing the park as an important trailhead for this recreational area.




# CONCEPT TWO | HISTORY FIRST

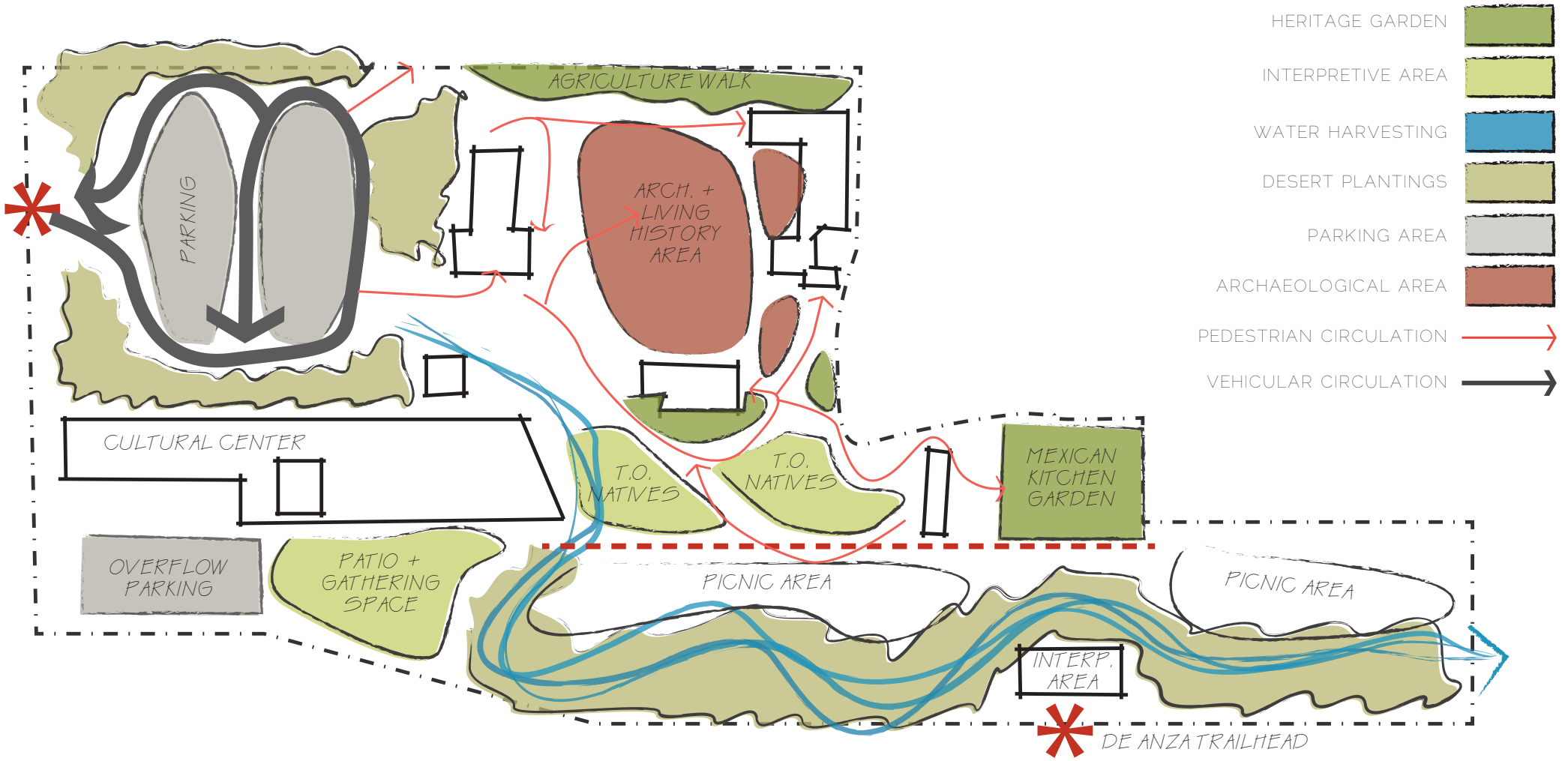
The second concept, 'History First', focuses mainly on the historic interpretation and built and archaeological remains of the site. Trails are directed throughout the site based on the location of archaeological remains, which would be rehabilitated and interpreted (currently the access is blocked and there is no interpretation for minor archaeological sites). A variety of trails are provided, including those that travel through the more established areas of the park visiting the buildings placed on the National Register, whereas more interpretive trails travel through the lower parts of the site, visiting different archaeological remains and passing along the De Anza trailhead. Another interpretive trail addresses the role of the Santa Cruz River in the history of the site along the stormwater runoff that is gathered from the parking lot.

This riparian zone will terminate in a large, existing mesquite bosque, which reflects the earlier natural environment of this area. Large areas are provided for interactive interpretive efforts; living history demonstrations, festivals, and adobe demonstration areas can all serve a variety of users in the different spaces, providing space and flexibility for programming opportunities. The parking lot is also somewhat reconfigured, providing less opportunity for vehicular and pedestrian conflict, while creating more vegetative buffer between the parking lot and the surrounding historic site.




# CONCEPT THREE | LIFE ZONES

The third concept, "Life Zones", focuses more on the natural and environmental history of the site and proposes to interpret those areas for visitors. It also focuses on interpreting the built history of the site as well, emphasizing the connection between the cultural and the natural world. One main change in this concept is the relocation of the entry plaza, towards the east end of the site, near the now-unused turnaround. This would give visitors the opportunity to first visit the museum and get a better understanding of the site, before proceeding to the physical remains. This concept also proposes a large cultural center on the site of the former parking lot, turning asphalt paving into a botanic garden and gathering space for events and other uses. This redirected space also creates an opportunity for more interpretive efforts; an adobe yard to provide hands-on experiential learning serves the dual purpose of creating adobe bricks for the rebuilt presidio walls. The former archaeological area is turned into a living history demonstration area. Also incorporated are a series of interpretive gardens, focusing on ethnobotany, heritage gardens, and a heritage orchard that demonstrates early irrigation techniques as well as giving visitors an opportunity to taste history. These heritage gardens have circulation paths between and throughout them, providing visitors with an ever-changing experience that highlights all of the senses while interpreting the less-visible story of early agriculture in the Santa Cruz River Valley region.




# CONCEPT FOUR | CULTURAL CENTER

The fourth concept, 'Cultural Center', proposes a significant built addition to the park grounds, a cultural center, which can provide formal event space on the grounds of the park to address the needs of the park as an event and cultural gathering space. This concept also proposes a division of the park into public and private areas; one for the historic and cultural interpretation of the site, and the other to provide a gathering space and recreational facility for locals and other visitors. The cultural center will create an additional income generating opportunity for the park, to be leased out for events, but also to serve as a headquarters for trips and other cultural events planned by the park. The picnic areas will be publicly accessible and have their own dedicated parking lot.. An interpretive pavilion at the trailhead of the De Anza trail will cement the role of De Anza in the development of the Tubac Presidio and provide additional recreational facilities at the park.

The entry sequence of the park from the surrounding village of Tubac will be reconfigured; now, visitors will see an inviting cultural center building and gardens instead of the entrance to a parking lot. Reconfiguring the parking lot will reduce the amount of impermeable paving whiles still providing plenty of parking for park visitors. Once inside the park, visitors will experience a number of different interpretive areas, ranging from the archaeological to the ethnobotanical. A variety of created garden spaces will showcase the variety of people who have called this site home; the floodzone agricultural areas of the Hohokam and their Tohono O'odham descendants; the kitchen gardens of the Mexican cattle pioneers, and the heritage gardens of the later European settlers.

# FINAL CONCEPT

The final concept, 'History Made Modern', compiles the most successful elements of previous concepts, while attempting to eliminate problems and causes of conflict present in other concepts. Though many different ideas have been explored in previous concepts, some elements were present throughout the conceptual design, and these reoccurrences are significant, as they represent what ideas are the strongest.

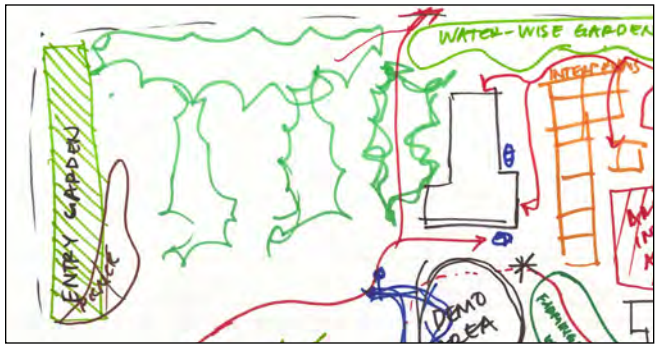
In consideration of the park's need for different areas of development for increased economic benefit, the site has been divided into two parts to allow for outside sources of revenue generation. The historic buildings, archaeological sites, and the museum all remain on the historic site of the state park, where a paid entry fee allows visitors to access the historic sites and the museum. This represents little change in the park's current mission, and will not exclude anything from the park that was not present before. It also guarantees a day-to-day source of income that can be applied towards the growth and maintenance of the historic assets within the state historic park. Reconstruction has been rejected as a possibility for this site, as there is not enough historic evidence to justify a reconstruction of the presidio walls. Instead, adobe building and interpretive areas have been moved to other areas of the park, where they can still be accessed for interpretation and maintenance purposes, but do not create the issues with authenticity that a reconstruction of the Presidio walls would surely invite. A different sort of interpretation and visualization will be proposed for the archaeological sites.

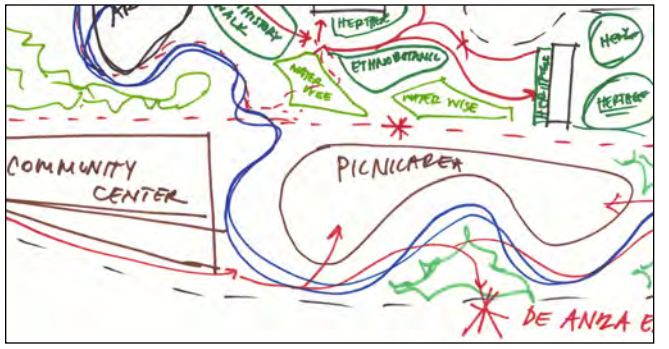
The second, southern section of the park creates a piece of the park more focused on recreation and providing physical amenities. A dedicated community center is the center of these public amenities, allowing for programming options from the park, but also providing opportunities for community groups, private event rentals, and other public uses. This community center could also host year-round amenities, like a small café, or bicycle rentals for the nearby De Azna trail system, making it a destination for a wide variety of activities. A dedicated parking lot for the community center also feeds into a trailhead and interpretive pavilion for the De Anza trail, orienting visitors to this multi-state historic route and providing opportunities for walking, biking, and other recreational uses. A picnic area allows for public use by visitors and community members, but also can be accessed by groups from within the historic side of the park, a perfect amenity for visiting school groups. The picnic areas have been broken up into several areas of different sizes to accommodate multiple groups. The public accessibility and picnic areas reach back to when the state park was publicly accessible, and did not have to rely on visitor entry fees for revenue, allowing nearby residents to once again consider the state park an integral part of their community.

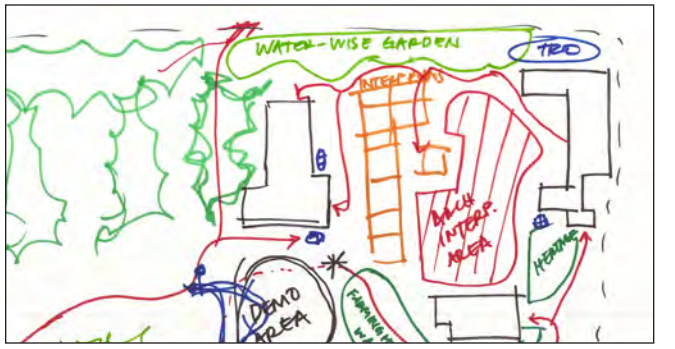
The Santa Cruz interpretive trail is the major element that connects all of the pieces. Primarily a conduit for managing stormwater runoff, this series of microbasins creates an area for interpretation of the desert ecosystem, and provides a direct link to the Santa Cruz River, out of site but an integral part of the history of the Presidio. Though it is not a recreation of the river itself, it can serve to illustrate the importance of the river in the prehistoric occupation of the site all the way to its present-day incarnation. It can also illustrate stormwater management principles to students, residents and visitors from out of town who are not familiar with the fleeting ephemerality of water in the desert, and how the desert dwellers have adapted their practices to take advantage of a scarce resource.

The parking lot is reduced in size of asphalt paving, reducing the heat island effect and improving water runoff quality. Though two rows of parking stalls remain, the third row of parking stalls is transformed into a multiuse area, and can function as overflow parking when needed but also for famer's market stalls or other interpretive events. Paved in decomposed granite, it can also serve an educational importance about the effect of impermeable surfaces in the urban heat island affect. As this parking is rarely used at its full capacity, this opens a large, flat and accessible area to other programming purposes. Adaptation of the current parking lot arrangement can create more suitable habitat for native species in planting basins, fed by stormwater captured from curb cuts and other water harvesting techniques. This will also help to create shade for the parking lot, beneficial to both cars parked in the lot and their human occupants.

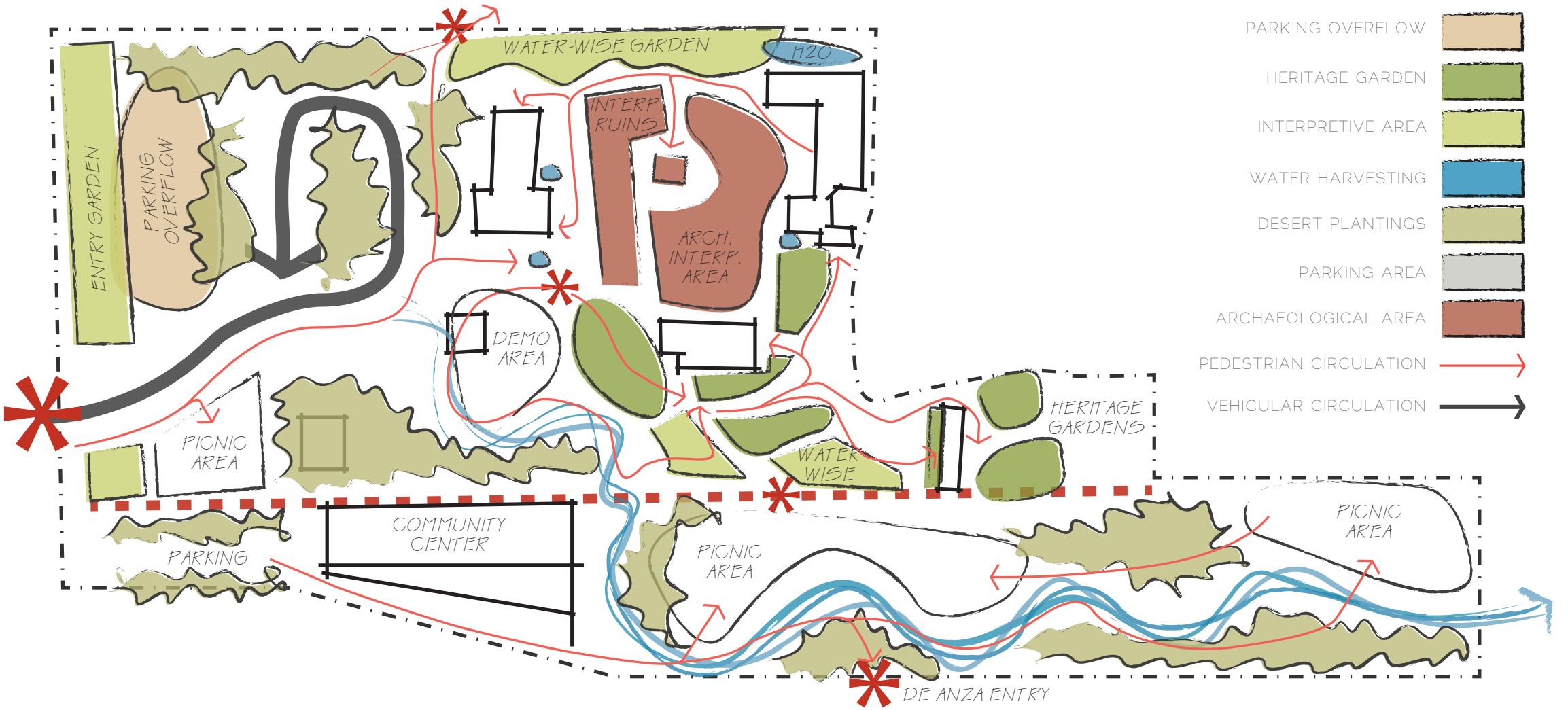
This concept seeks to unite historic destinations, creating an interpretive whole, instead of just chapters of a story. Heritage, water-wise and ethnobotanic gardens showcase the story not seen in the historic buildings and archaeological remains, and provide interest for visitors throughout their journey through the historic park. Educational opportunities are expanded for visiting groups, and seasonal change gives them a reason to return. This concept seeks to unite journeys between interpretive destinations, providing an opportunity for education, inspiration, and wonder, every step of the way.

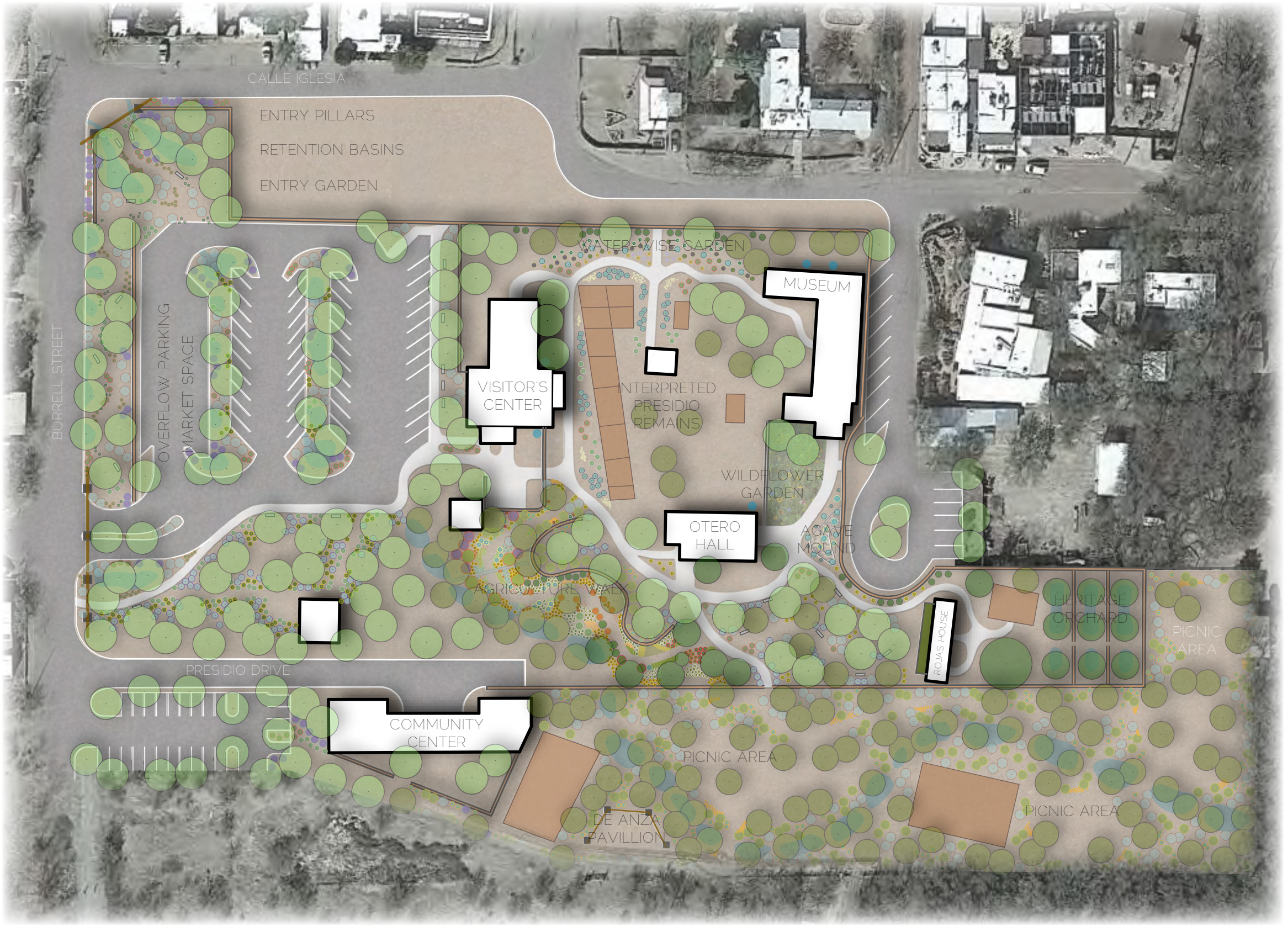



# HISTORY MADE MODERN




CALLE IGLESIA
ENTRY PILLARS
RETENTION BASINS
ENTRY GARDEN
WATER-WISE GARDEN
MUSEUM
BURRELL STREET
OVERFLOW PARKING
MARKET SPACE
VISITOR'S CENTER
INTERPRETED PRESIDIO REMAINS
WILDFLOWER GARDEN
OTERO HALL
AGAVE MOUND
AGRICULTURE WALK
HERITAGE ORCHARD
ROJAS HOUSE
PICNIC AREA
PRESIDIO DRIVE
COMMUNITY CENTER
PICNIC AREA
DE ANZA PAVILLION
PICNIC AREA

# SITE PLAN

The Tubac Presidio State Park Master Plan builds on the final conceptual plan to create a dynamic, educational and interpretive site that acknowledges and includes the needs of a variety of users. The main mission of the Tubac Presidio State Park is preserved and enhanced, while acknowledging the park's dual role as both a site for preservation and historic preservation while also providing recreational amenities for the surrounding community. This is accomplished by dividing the park into two parts. The first part is the historic Tubac Presidio State Park, that houses all of the buildings listed on the National Register, many of the archaeological remains, the visitor's center, and the museum. The second part is the public, community-oriented side of the park, with a proposed community center and varied picnic areas available to the public. It also creates a defined parking lot and interpretive pavilion for the historic De Anza trail trailhead on the site, defining this area as a destination for those who wish to travel along some length of the trail.

First impressions are important, and this design proposes a significant overhaul of the entire entry sequence to the park. Taking advantage of its location at the end of a long street, tall signage is proposed to create a sense of identity, and to help visitors to Tubac be aware of the park as a destination. Another destination point is created at the corner intersection of Calle Iglesia and Burrell Street, serving as a pedestrian entrance but also as another landmark for the surrounding area. Entry gardens link the two spaces and lead visitors into the heart of the park, creating an oasis and an enticement. Microbasins gather water runoff from the surrounding village of Tubac, providing supplementary irrigation for the entry gardens as well as an effective demonstration of water harvesting techniques. Visitors to Tubac can leave with a better understanding of the deserts and this community without even having to visit the Tubac Presidio.

The main destinations of the historic portion of the park are preserved in place, and the majority of the historic objects are preserved in the proposed historic portion of the site. New interpretive areas are created in the spaces between these historic destinations, creating an interpretive whole that incorporates existing as well as proposed exhibits. The most prominent change in this area of the park is the newly interpreted presidio remains. Although the remains themselves are below the ground, and can be accessed from the underground viewing station, a strongly delineated illustration of the presidio is created on the ground plane with Cor-Ten steel edging and varied rock textures and colors. Currently this affect is achieved by an outline of small rip-rap boulders, and this proposal builds off of the current interpretive efforts to create something more accessible, permanent, and easy to understand. The images of the presidio drawn upon the ground will also be easy to maintain. Plantings along the edges are low-lying and will not impede a visitor's view of the presidio, while shade trees are planted along the outside edges to still offer shade and comfort to visitors.

There are a number of dedicated gardens throughout the park that offer the visitor a chance for engagement, appreciation, and understanding as they move throughout the site. A heavy tree canopy provides shade and cooling for visitors, as well as creating a visual screen for the surrounding urban context, bringing the visitor's attention and focus back to the immediate surroundings. These areas are designed to highlight specific attributes in the park. A water wise garden demonstrates water capturing techniques and appropriate plantings, which can be implemented in a home garden. A wildflower and pollinator garden showcases the beauty of native wildflowers and interprets the importance of attracting pollinators, especially in the desert. A series of heritage gardens surround many of the historic buildings on the site, creating fuller interpretive environments that can viscerally connect the visitor with a sense of the past. These gardens can be designed, implemented, and maintained easily by park volunteers, giving them a sense of agency and responsibility in the park, which serves to reinforce the volunteer effort, especially important in this state park. A heritage orchard, planted with fruit stocks descended from or brought over by the Spanish padres, sits adjacent to the historic Rojas House, recreating a more recent Sonoran-style housing complex. More complex gardens are proposed in other areas, interpreting specific areas of interest, such as the evolution of agricultural techniques in the Tubac area.

The buildings placed on the National Register of Historic Places, as well as the excavated presidio ruins, and the Presidio Museum, all remain on the newly partitioned historic side of the park. The community center defines the public access area of the park, creating separated parking facilities, easy accessibility to the proposed community center, as well as access to the newly created De Anza Historic Trail interpretive pavilion. Beyond these facilities are picnic areas of varying sizes to accommodate a wide variety of users. This trail also runs alongside several archaeological remnants that are within the bounds of the public area of the park, providing interpretive opportunities for casual visitors, and possibly enticing them into the historic park grounds next door.

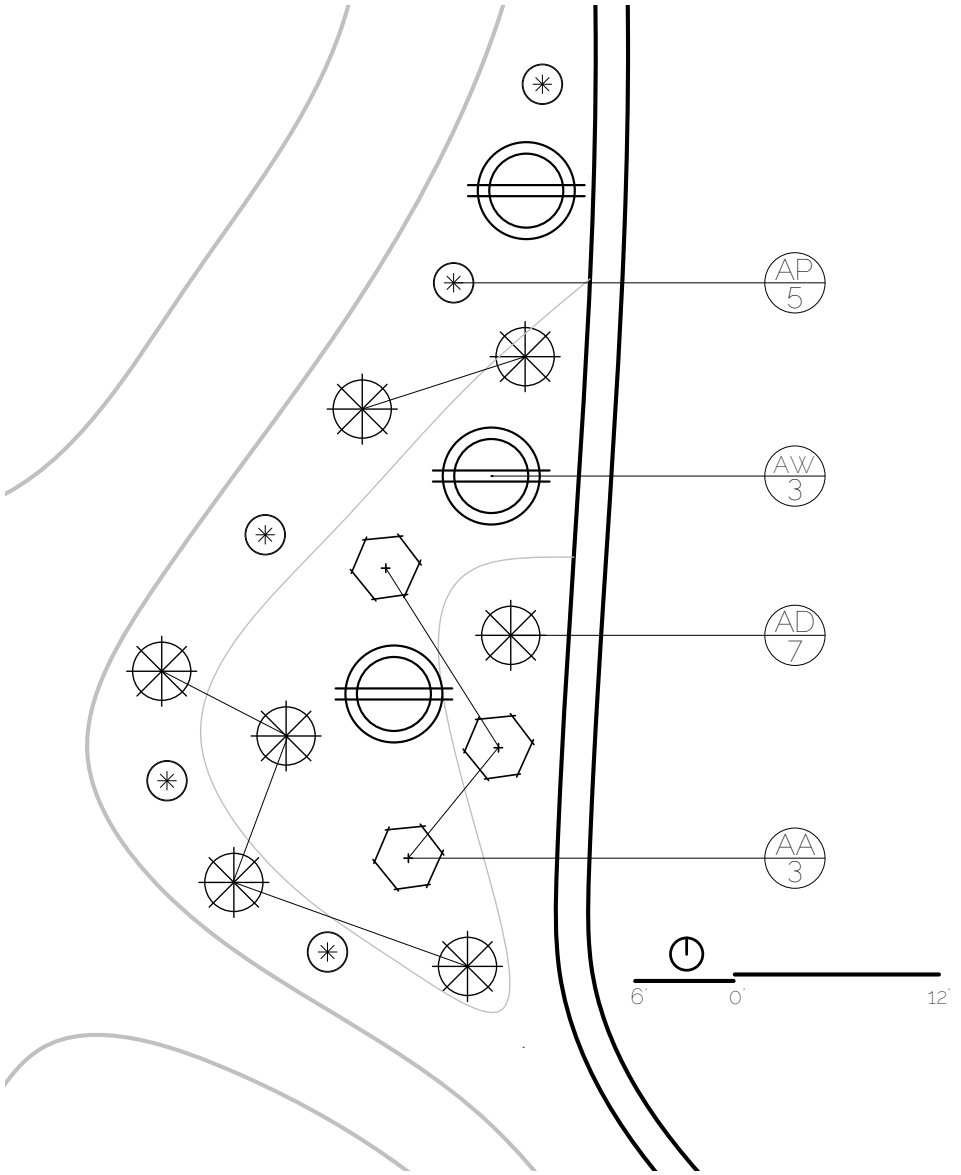
This design creates different opportunities and experiences from one current park, expanding the mission and reach of the current arrangement to incorporate a wider variety of users and experiences.

# AGAVE MOUND


Upon exiting the museum, the visitor is fresh with ideas and understanding of the site throughout its entire history. Although a number of material artifacts are preserved inside of the museum, a live presentation of the plants and cultivation techniques of the earliest settlers of the area can reinforce that newly gained knowledge.

The Agave Mound demonstration area interprets the original agave terraced plantings found in southern Arizona and throughout Mexico. These specialized plants are adapted to their native desert environment and provided a number of benefits for early occupants of the desert, including food, fiber, alcohol, and other tools. Agaves and yuccas were used for their fibers, which were formed into ropes, clothing, and footwear. They were also used for soap, as the roots of certain species of yucca have soapy properties. Agave roots were roasted and pounded to a pulp, and either eaten as-is or fermented into an alcoholic beverage called pulque. Agaves were cultivated by the Hohokam and stone terraces, allowing the natural downhill flow of the water to irrigate the plants. Agaves have a natural life span, culminating in one flowering, after which the plant dies.Various yucca and agave species were more adapted to different climates, and this exhibit showcases many of those species that are mostly commonly found and widely used within this area.

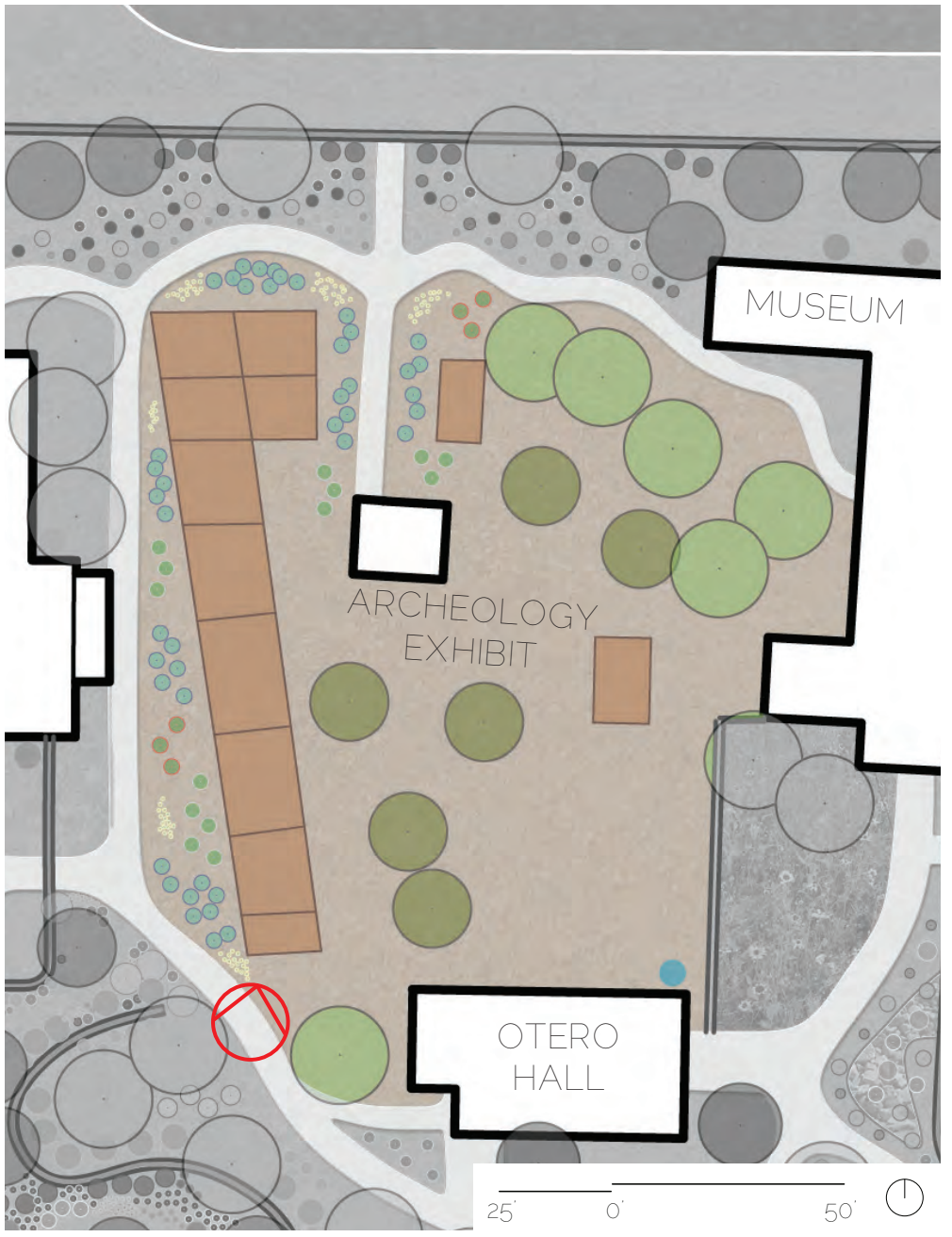
Rock garden demonstrating a series of native and near-native agaves cultivated by prehistoric peoples.




| SYMBOL | QTY | BOTANICAL NAME | COMMON NAME | SIZE | FLOWERING |
|---|---|---|---|---|---|
| AP | 5 | AGAVE PARRYI | PARRY'S AGAVE | 3 GAL | |
| AW | 3 | AGAVE WEBERI | WEBER AGAVE | 5 GAL | |
| AD | 7 | AGAVE DESERTI | DESERT AGAVE | 5 GAL | |
| AA | 3 | AGAVE AMERICANA | CENTURY PLANT | 5 GAL | |



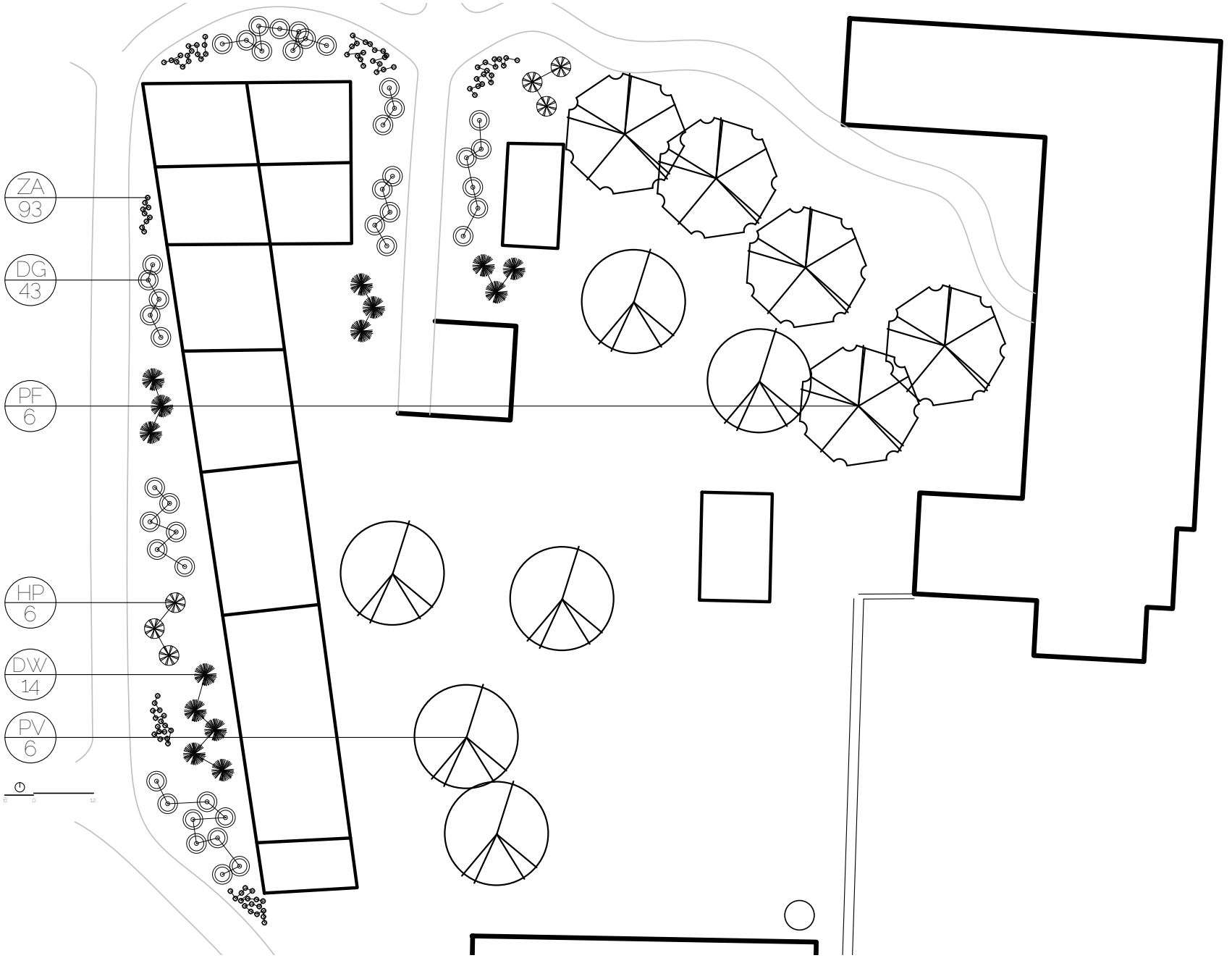

# INTERPRETED PRESIDIO




Preservation and interpretation of adobe archaeological remains is a difficult undertaking. Providing shelter for the remains, or reburying them, are the only effective approaches for long-term preservation. Keeping tree roots and other plant materials from the underground remains is also an important consideration when considering a planting plan.

Interpretation is another difficulty for earthen architectural remains that are buried below the surface. Reconstruction is not a preferred treatment, as it requires significant maintenance by trained staff and raises issues of authenticity. The current strategy of outlining the remains with small rocks allows the visitor to imagine what lies beneath, but poses problems with weed growth and can be confusing to distinguish from the ground plane. Creating a large-scale interpretation of the buried presidio remains with steel edging and different-colored ground cover allows the visitor to more clearly distinguish the buried remains from the ground surrounding the site. Small plants line the edges, their roots not disturbing the remains beneath, and allow visitors a clear view to the outlined remains beyond. Larger trees dot the landscape behind, framing the main view of the presidio and providing microclimate in other areas of the site.

Steel edging and differentiated ground cover allow for easier interpretation of the presidio remains by visitors.




| SYMBOL | QTY | BOTANICAL NAME | COMMON NAME | SIZE | FLOWERING |
|---|---|---|---|---|---|
| ZA | 93 | ZINNIA ACEROSA | DESERT ZINNIA | 1 GAL | SUMMER |
| DG | 43 | DALEA GREGGII | TRAILING DALEA | 1 GAL | SPRING + SUMMER |
| PF | 6 | PARKINSONIA FLORIDA | BLUE PALO VERDE | 15 GAL | LATE SPRING |

| SYMBOL | QTY | BOTANICAL NAME | COMMON NAME | SIZE | FLOWERING |
|---|---|---|---|---|---|
| HP | 6 | HESPERALOE PARVIFLORA | RED ALOE | 5 GAL | SPRING + SUMMER |
| DW | 14 | DASYLIRION WHEELERI | DESERT SPOON | 5 GAL | SUMMER |
| PV | 15 | PROSOPIS VELUTINA | VELVET MESQUITE | 15 GAL | |


ZA


DG

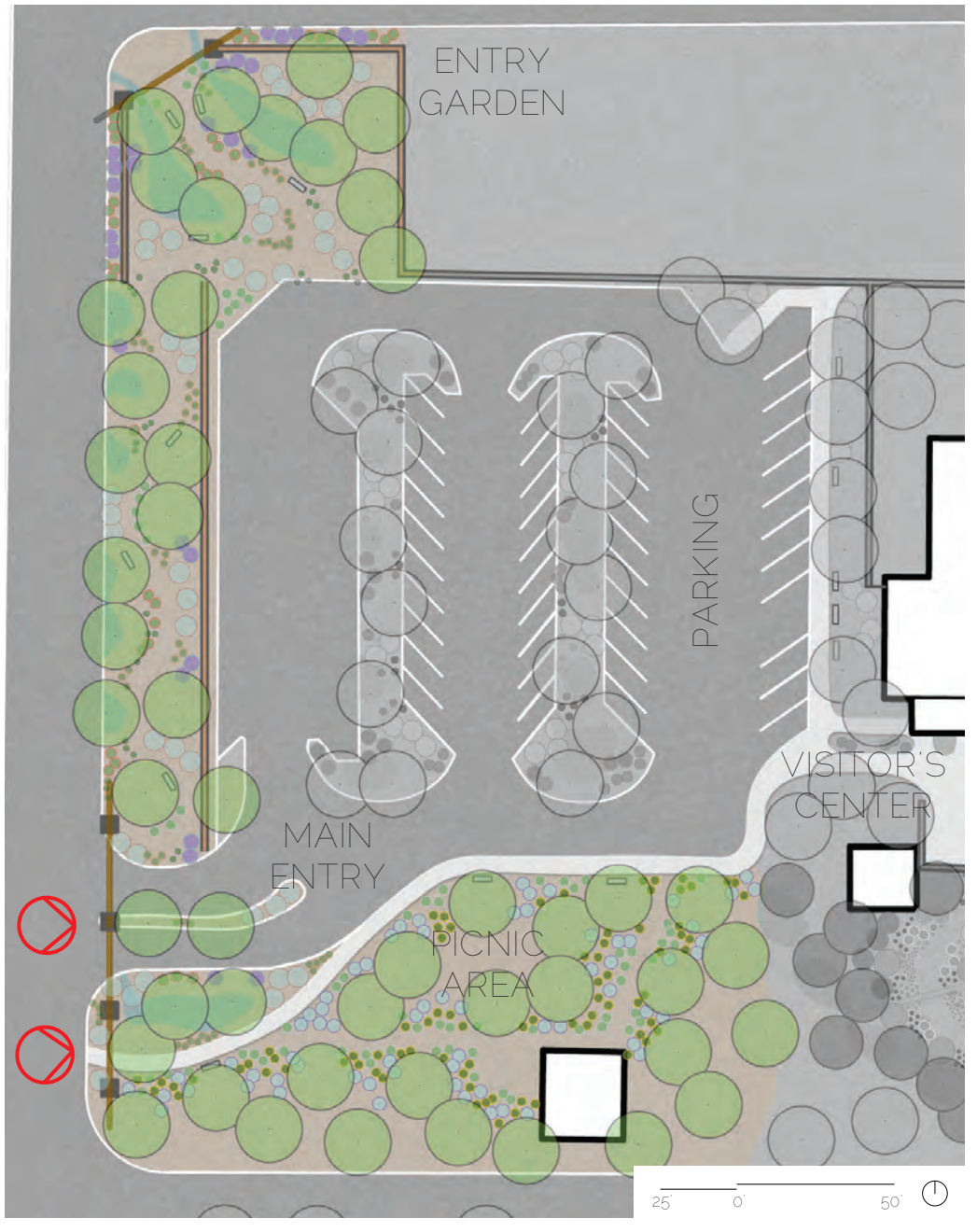

HP


DW


PV


PF

# ENTRY SEQUENCE




Currently, the park entry point sits at the end of a road through the village of Tubac, with nothing more to grab a visitor's attention than a small yellow sign that declares "Yes, we're open!". This entry sequence is intended to create a more captivating entry point for the park, and to serve as a landmark that can be seen throughout Tubac, enticing more visitors through the park's gates. Landscaping and botanical walks line the public area of the site, create a benefit to neighbors and visitors alike who may find a moment of respite along the park's outer walls. Green techniques are utilized, creating microbasins along the road border to capture stormwater runoff from the town, creating an opportunity for additional irrigation for native plantings along the border. These plantings are all near or near-native, creating an effective demonstration of what is possible to create with low-water, desert-appropriate landscape.


An iconic entry sequence creates a sense of arrival for visitors and is a landmark that can be seen throughout the village.


HP


AT


LF

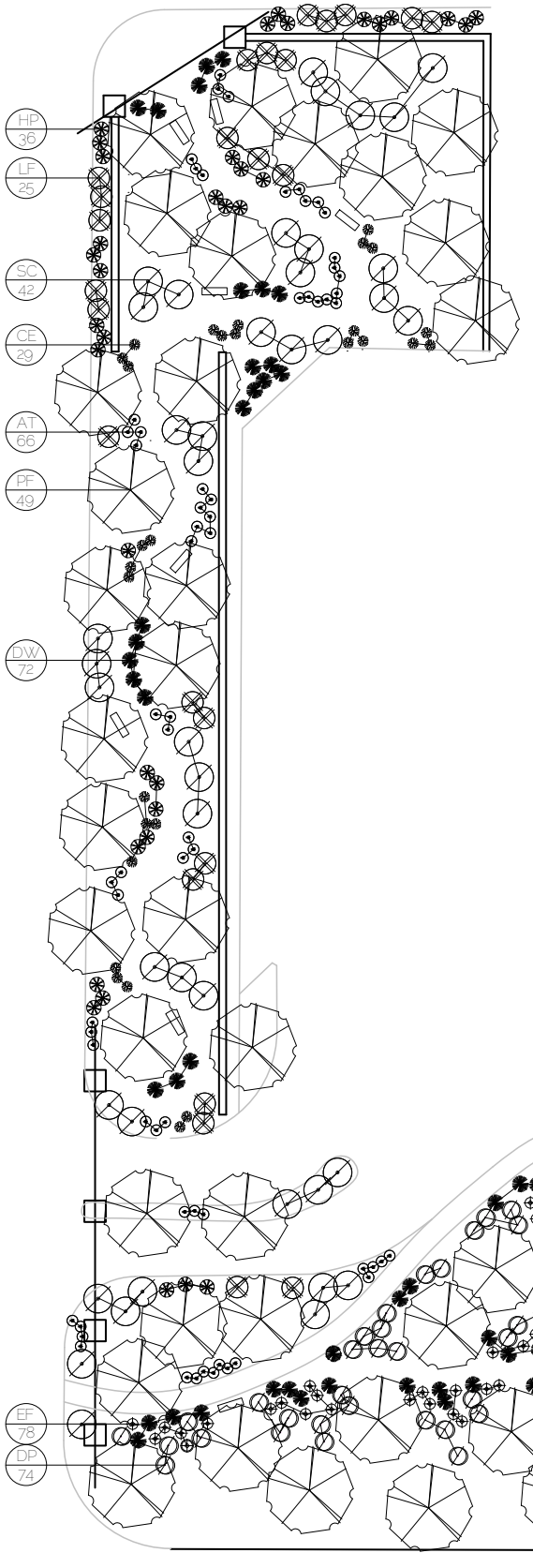

DW


SC


EF


CE


DP




| SYMBOL | QTY | BOTANICAL NAME | COMMON NAME | SIZE | FLOWERING |
|---|---|---|---|---|---|
| HP | 36 | HESPERALOE PARVIFLORA | RED ALOE | 5 GAL | SPRING + SUMMER |
| LF | 25 | LEUCOPHYLLUM FRUTESCENS | TEXAS RANGER | 5 GAL | SUMMER + FALL |
| SC | 42 | SIMMONDSIA CHINENSIS | JOJOBA | 5 GAL | SUMMER + FALL |
| CE | 29 | CALLIANDRA ERIOPHYLLA | FAIRY DUSTER | 3 GAL | WINTER + SPRING |
| AT | 66 | ANISICANTHUS THURBERI | DESERT HONEYSUCKLE | 5 GAL | SPRING + SUMMER |
| PF | 49 | PARKINSONIA FLORIDA | BLUE PALO VERDE | 15 GAL | LATE SPRING |
| CE | 72 | DASYLIRION WHEELERI | DESERT SPOON | 5 GAL | SUMMER |
| EF | 78 | ENCELIA FARINOSA | BRITTLEBUSH | 5 GAL | WINTER + SPRING |
| DP | 74 | DALEA PULCHRA | INDIGO BUSH | 5 GAL | WINTER + SPRING |

# AGRICULTURE WALK


This ethnobotanic garden walk highlights the species and technological developments that characterized agricultural cultivation in this area, from the domesticated native species and water channels of the Hohokam to the introduced Old World species of the Spanish padres and later settlers. A gradient of different species shows the slow change over time, as some species drop in and out of favor, native species that have been domesticated take on a new character, and species that are especially popular and useful multiply in their number and importance over time. This area of Arizona is of special importance in the development of agriculture practices in the Southwest, and especially North America, and this agriculture walk provides a visceral experience for visitors, demonstrating species both familiar and novel that sustained early settlers in these communities. Another aspect of interpretation is the channels and irrigation adjacent to the created Santa Cruz Interpretive Trail, which harvests runoff from the parking lot during storm events and distributes the water throughout and along the site. These microbasins and channels can demonstrate, whether dry or wet, some of the techniques that early settlers used to harvest the Santa Cruz River for their own purposes, while simultaneously connecting the site to the actual Santa Cruz River that lies just outside of the bounds of the park, but plays such an important role in the history and development of this site.

The Agriculture Walk takes visitors on a tour through the evolution of agriculture in the Sonoran Desert.


HP


CA


FW


GH


PS


BA


OV


ZM


YE


LT


LB

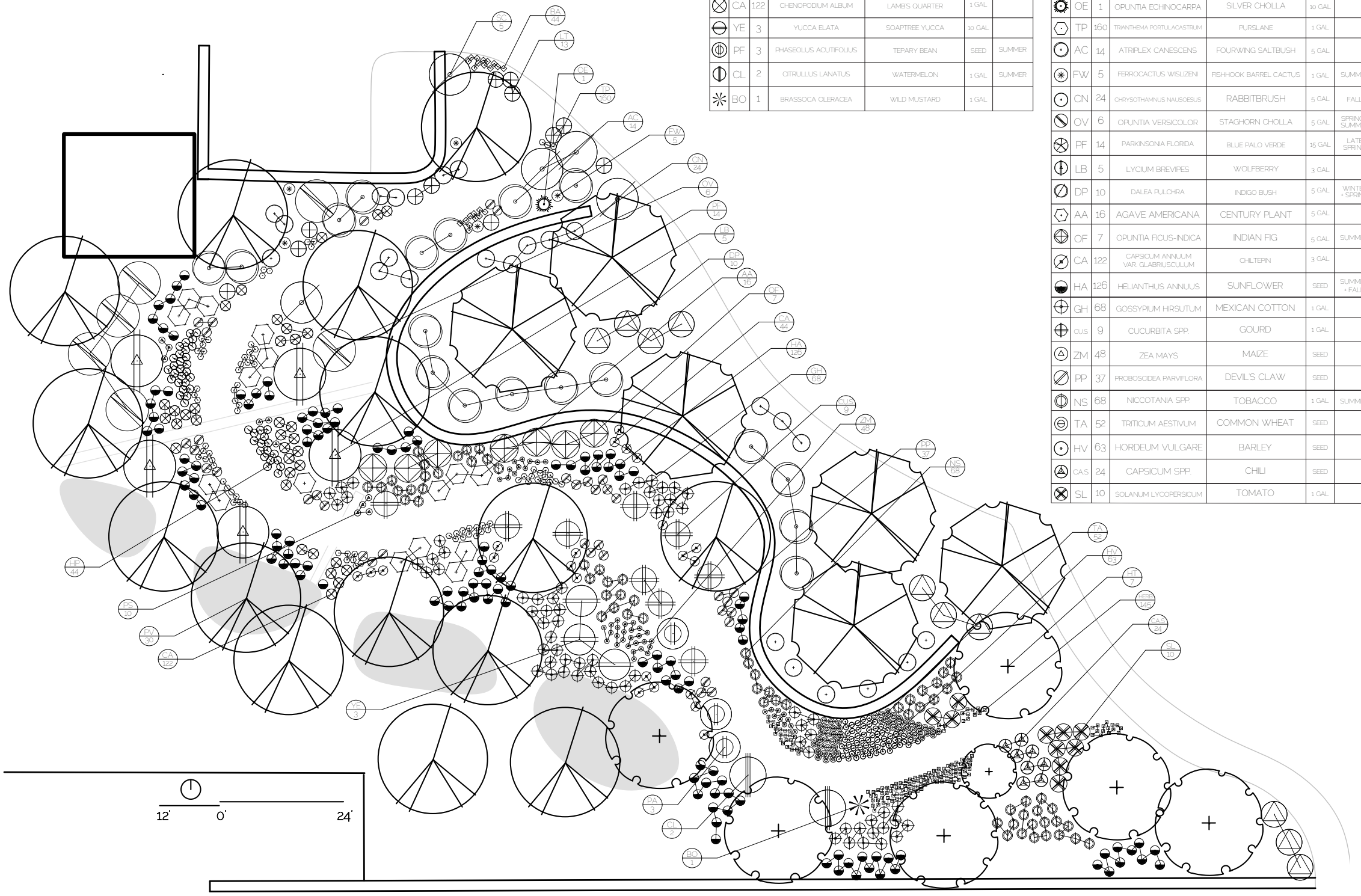

PP


PA


TP


HA


TA




| SYMBOL | QTY | BOTANICAL NAME | COMMON NAME | SIZE | FLOWERING |
|---|---|---|---|---|---|
| HP | 44 | HORDEUM PUSILLUM | LITTLE BARLEY | 1 GAL | |
| PS | 10 | PHYSALIS SPP. | GROUND CHERRY | 3 GAL | |
| PV | 5 | PROSOPIS VELUTINA | VELVET MESQUITE | 15 GAL | |
| CA | 122 | CHENOPODIUM ALBUM | LAMB'S QUARTER | 1 GAL | |
| YE | 3 | YUCCA ELATA | SOAPTREE YUCCA | 10 GAL | |
| PF | 3 | PHASEOLUS ACUTIFOLIUS | TEPARY BEAN | SEED | SUMMER |
| CL | 2 | CITRULLUS LANATUS | WATERMELON | 1 GAL | SUMMER |
| BO | 1 | BRASSOCA OLERACEA | WILD MUSTARD | 1 GAL | |

| SYMBOL | QTY | BOTANICAL NAME | COMMON NAME | SIZE | FLOWERING |
|---|---|---|---|---|---|
| SC | 5 | SIMMONDSIA CHINENSIS | JOJOBA | 1 GAL | SUMMER + FALL |
| BA | 44 | BAHIA ABSINTHIFOLIA | BAHIA | 1 GAL | SPRING- FALL |
| LT | 13 | LARREA TRIDENTATA | CREOSOTE BUSH | 3 GAL | |
| OE | 1 | OPUNTIA ECHINOCARPA | SILVER CHOLLA | 10 GAL | |
| TP | 160 | TRIANTHEMA PORTULACASTRUM | PURSLANE | 1 GAL | |
| AC | 14 | ATRIPLEX CANESCENS | FOURWING SALTBUSH | 5 GAL | |
| FW | 5 | FERROCACTUS WISLIZENI | FISHHOOK BARREL CACTUS | 1 GAL | SUMMER |
| CN | 24 | CHRYSOTHAMNUS NAUSOESUS | RABBITBRUSH | 5 GAL | FALL |
| OV | 6 | OPUNTIA VERSICOLOR | STAGHORN CHOLLA | 5 GAL | SPRING + SUMMER |
| PF | 14 | PARKINSONIA FLORIDA | BLUE PALO VERDE | 15 GAL | LATE SPRING |
| LB | 5 | LYCIUM BREVIPES | WOLFBERRY | 3 GAL | |
| DP | 10 | DALEA PULCHRA | INDIGO BUSH | 5 GAL | WINTER + SPRING |
| AA | 16 | AGAVE AMERICANA | CENTURY PLANT | 5 GAL | |
| OF | 7 | OPUNTIA FICUS-INDICA | INDIAN FIG | 5 GAL | SUMMER |
| CA | 122 | CAPSICUM ANNUUM VAR. GLABRIUSCULUM | CHILTEPIN | 3 GAL | |
| HA | 126 | HELIANTHUS ANNUUS | SUNFLOWER | SEED | SUMMER + FALL |
| GH | 68 | GOSSYPIUM HIRSUTUM | MEXICAN COTTON | 1 GAL | |
| CUS | 9 | CUCURBITA SPP. | GOURD | 1 GAL | |
| ZM | 48 | ZEA MAYS | MAIZE | SEED | |
| PP | 37 | PROBOSCIDEA PARVIFLORA | DEVIL'S CLAW | SEED | |
| NS | 68 | NICCOTANIA SPP. | TOBACCO | 1 GAL | SUMMER |
| TA | 52 | TRITICUM AESTIVUM | COMMON WHEAT | SEED | |
| HV | 63 | HORDEUM VULGARE | BARLEY | SEED | |
| CAS | 24 | CAPSICUM SPP. | CHILI | SEED | |
| SL | 10 | SOLANUM LYCOPERSICUM | TOMATO | 1 GAL | |

## WILD NATIVES

Prosopis velutina | Velvet Mesquite
Simmondsia chinensis | Jojoba
Bahia absinthifolia | Bahia
Larrea tridentata | Creosote Bush
Trianthema portulacastrum | Purslane
Atriplex canescens | Fourwing Saltbush
Optuntia echinocarpa | Silver Cholla
Ferrocactus wislizenii | Fishook Barrel
Proboscidea parviflora | Devil's Claw
Chrysothamnus nauseosus | Rabbitbrush
Chenopodium album | Lamb's Quarter
Agave americana | Centuryplant

## HOHOKAM

Agave americana | Centuryplant
Optuntia versicolor | Staghorn Cholla
Prosopis velutina | Velvet Mesquite
Lycium Brevipes | Wolfberry
Trianthema portulacastrum | Purslane
Physalis spp. | Ground Cherry
Helianthus annuus | Sunflower
Chenopodium album | Lamb's Quarter
Hordeum pusillum | Little Barley

## MESOAMERICAN

Helianthus annuus | Sunflower
Opuntia ficus-indica | Indian Fig
Physalis spp. | Ground Cherry
Proboscidea parviflora | Devil's Claw
Agave americana | Centuryplant
Trianthema portulacastrum | Purslane
Prosopis velutina | Velvet Mesquite
Cucurbita spp. | Gourd
Gossypium hisutum | Mexican Cotton
Niccotania spp. | Tobacco
Capsicum annuum | Chiltepin
Zea mays | Maize

## TOHONO O'ODHAM

Prosopis velutina | Velvet Mesquite
Cucurbita spp. | Gourd
Gossypium hisutum | Mexican Cotton
Niccotania spp. | Tobacco
Capsicum annuum | Chiltepin
Zea mays | Maize
Helianthus annuus | Sunflower
Opuntia ficus-indica | Indian Fig
Proboscidea parviflora | Devil's Claw
Phaseolus acutifolius | Tepary Bean

## EARLY SPANISH

Gossypium hisutum | Mexican Cotton
Niccotania spp. | Tobacco
Helianthus annuus | Sunflower
Triticum aestivum | Wheat
Hordeum vulgare | Barley
Zea mays | Maize
Citrullus lanatus | Watermelon
Brassica oleracea | Cabbage Family
Latuca sativa | Lettuce
Allium sativum | Garlic
Punica granatum | Pomegranate
Malus domestica | Apple

## EUROPEAN

Gossypium hisutum | Mexican Cotton
Niccotania spp. | Tobacco
Helianthus annuus | Sunflower
Triticum aestivum | Wheat
Hordeum vulgare | Barley
Zea mays | Maize
Solanum lycopersicum | Tomato
Capsicum spp. | Chile
Rosmarinus officinals | Rosemary
Solanum tuberosum | Potato
Arachis hypogaea | Peanut
Petroselinum crispum | Parsley

# COMMUNITY CENTER


The community center is the anchoring piece of the newly created public area of the park. It is structured to have flexible space that can be divided up for smaller events or the spaces can be opened up into one large room to accommodate large events. The partially enclosed walled patio acts as a spillover space for events, or provides a pleasant formal gathering space when the weather is right. This community center has a dedicated parking lot, separate from the main Tubac Presidio State Park parking lot, which provides easy accessibility for all potential users of the community center. There are few, if any, public community centers in this area, and this center has the potential to establish the Tubac Presidio State Park as the heart of this community.

The remainder of the space of the community center side of the park is dedicated to public use and accessibility. At one point in the past, the Tubac Presidio State Park was open to the public for picnics and other recreational uses, and this plan reestablishes that public amenity, providing a variety of picnic spaces, defined by soft edges and native plantings, shaded by native mesquite trees, capturing the feeling of a typical mesquite bosque that was once common to this area and still exists along the edges of the park.

The other focus of this area is as a trailhead for the neighboring De Anza National Historic Trail. Though it currently serves that purpose, the entry is not well marked and it appears to be more of an afterthought than a destination. The parking lot of the community center can function as parking for those who wish to hike a length of the trail, and the community center could be modified in the future to provide refreshments, bicycle rentals, or other amentities, as the De Anza trail continues to be completed. An interpretive pavilion sits just next to the community center and provides a meeting point for hikers and those who are interested in learning more about Juan Bautista de Anza and the history of this area.

The Community Center creates opportunities for gathering and recreation, able to be accessed by the general public.


PE


PV


HP

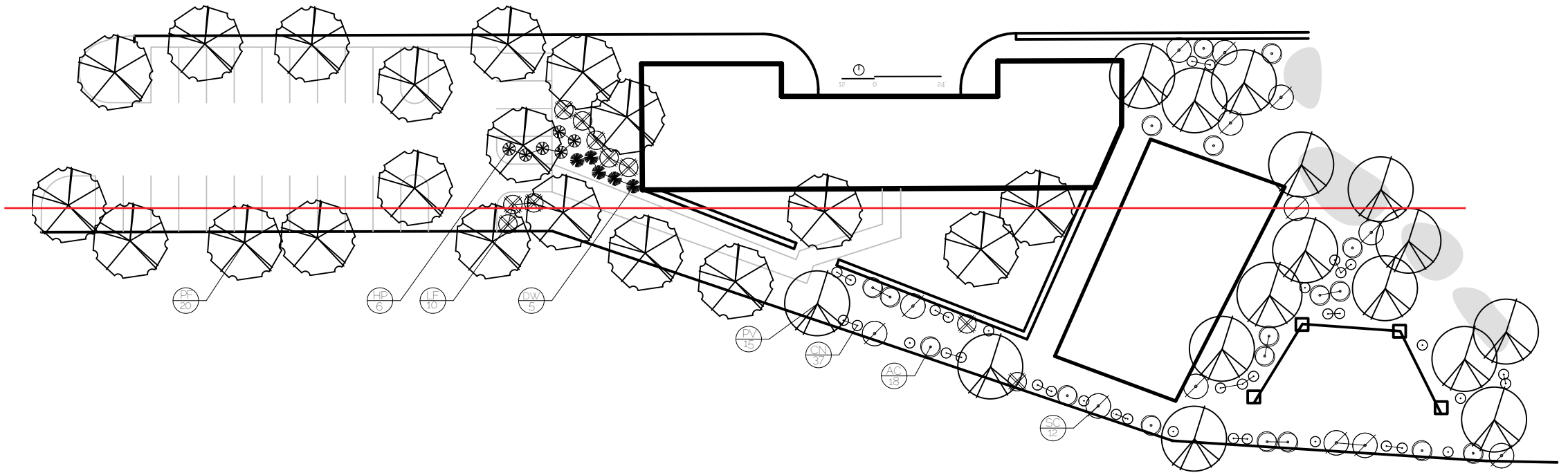

CN


LF


AC


DW

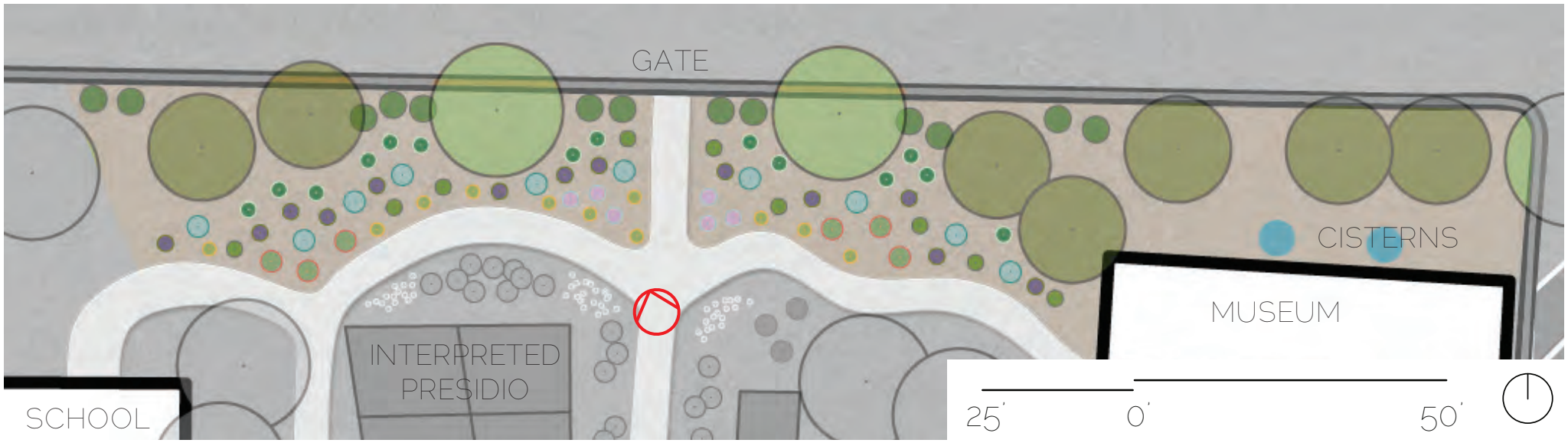

SC




| SYMBOL | QTY | BOTANICAL NAME | COMMON NAME | SIZE | FLOWERING |
|---|---|---|---|---|---|
| PF | 20 | PARKINSONIA FLORIDA | BLUE PALO VERDE | 15 GAL | LATE SPRING |
| HP | 6 | HESPERALOE PARVIFLORA | RED ALOE | 5 GAL | SPRING + SUMMER |
| LF | 10 | LEUCOPHYLLUM FRUTESCENS | TEXAS RANGER | 5 GAL | SUMMER + FALL |
| CE | 5 | DASYLIRION WHEELERI | DESERT SPOON | 5 GAL | SUMMER |

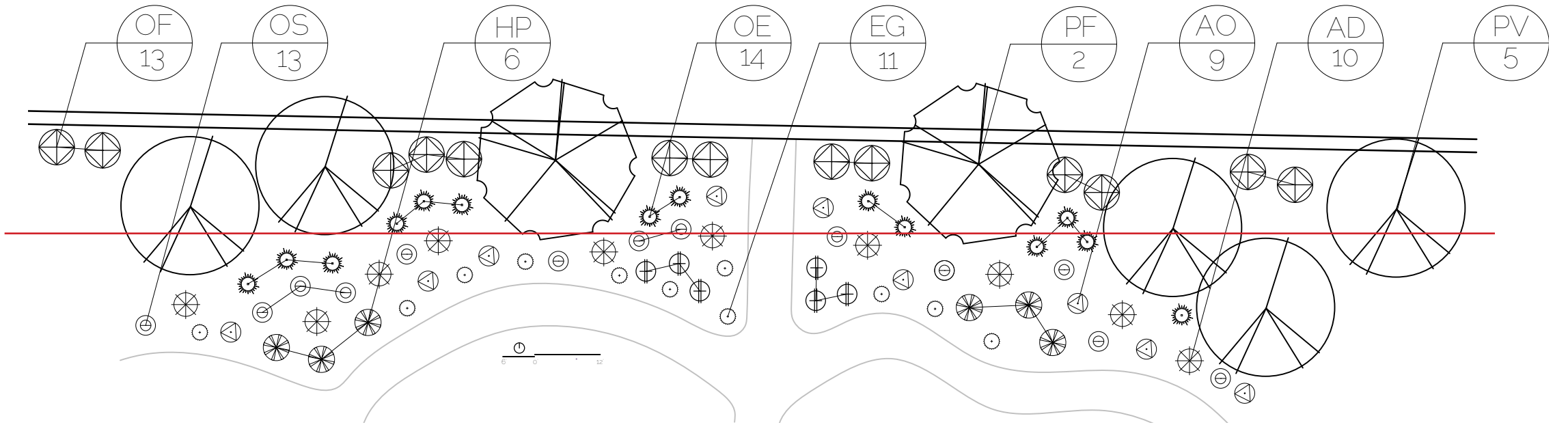
| SYMBOL | QTY | BOTANICAL NAME | COMMON NAME | SIZE | FLOWERING |
|---|---|---|---|---|---|
| PV | 15 | PROSOPIS VELUTINA | VELVET MESQUITE | 15 GAL | |
| CN | 37 | CHRYSOTHAMNUS NAUSOESUS | RABBITBRUSH | 5 GAL | FALL |
| AC | 18 | ATRIPLEX CANESCENS | FOURWING SALTBUSH | 5 GAL | |
| SC | 12 | SIMMONDSIA CHINENSIS | JOJOBA | 5 GAL | SUMMER + FALL |

# WATER-WISE GARDEN




This garden demonstrates water-wise principles, providing examples and inspiration for visitors from far and wide on how to manage the unique climatic conditions of the Sonoran Desert in a beautiful and appropriate way. Occupying a previously unused area of the park, it is also visible from outside of the park, inviting those who catch a glimpse to come into the park and see what else it has to offer. Species have been chosen for their visual interest, appropriate native habitat, and ability to be obtained by the public. Most, if not all, of these species are readily available, should the visitor want to incorporate some of these ideas and practices into their own home projects. The large mesquite trees provide shade to visitors, while creating a visual screen from the nearby buildings, street, and power lines, creating a sense of exclusivity and serenity within the boundaries of the park. This oasis effect may also serve as an inducement to passers-by to check out what the park has to offer. Water harvesting is another aspect of this garden, with cisterns proposed to catch water runoff from the nearby buildings, underneath existing drainage canales and atop existing concrete pads. This captured rainwater can be used for supplementary irrigation for nearby plantings, but will also redirect the runoff water from the foundations of the museum and help prevent erosion due to the steep slope in the furthest corner of the park, while providing an additional interpretive opportunity.

A water-wise garden flanks the back wall of the park, providing interpretation, education, and beauty for visitors.




| SYMBOL | QTY | BOTANICAL NAME | COMMON NAME | SIZE | FLOWERING |
|---|---|---|---|---|---|
| OF | 13 | OPUNTIA FICUS-INDICA | INDIAN FIG | 5 GAL | SUMMER |
| OS | 13 | OPUNTIA SANTA-RITA | PURPLE PRICKLY PEAR | 5 GAL | SPRING |
| HP | 6 | HESPERALOE PARVIFLORA | RED ALOE | 5 GAL | SPRING + SUMMER |
| OE | 14 | OPUNTIA ECHINOCARPA | SILVER CHOLLA | 10 GAL | |

| SYMBOL | QTY | BOTANICAL NAME | COMMON NAME | SIZE | FLOWERING |
|---|---|---|---|---|---|
| EG | 11 | ECHINOCACTUS GRUSONII | GOLDEN BARREL CACTUS | 3 GAL | |
| AO | 9 | AGAVE OCAHUI | OCAHUI AGAVE | 5 GAL | |
| AD | 10 | AGAVE DESERTI | DESERT AGAVE | 5 GAL | |
| PV | 5 | PROSOPIS VELUTINA | VELVET MESQUITE | 15 GAL | |


OF


EG


OS


AO

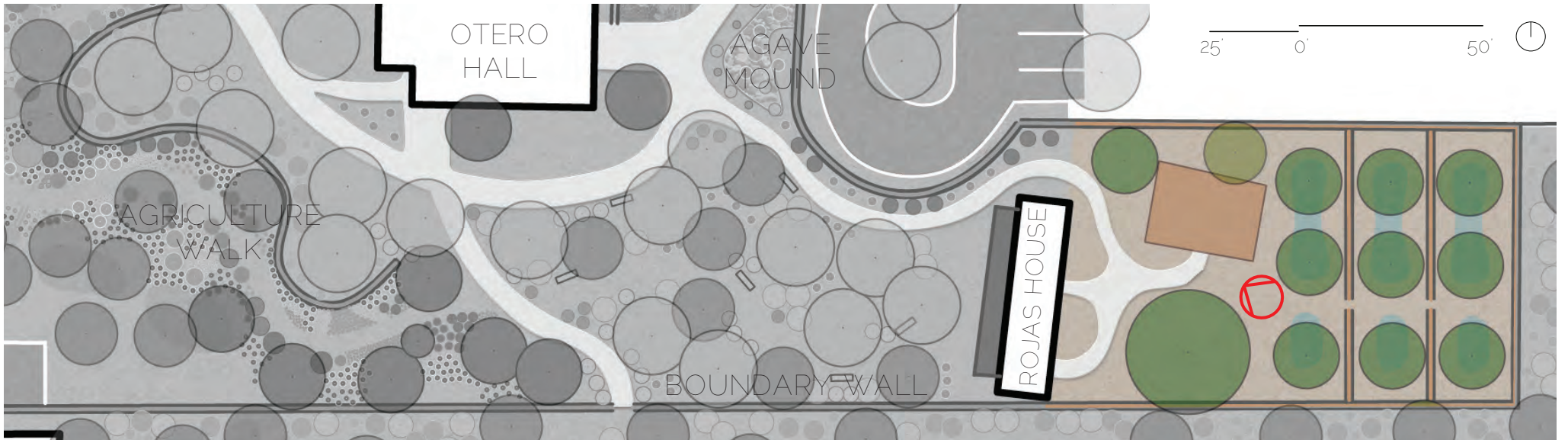

HP


AD


OE


PV

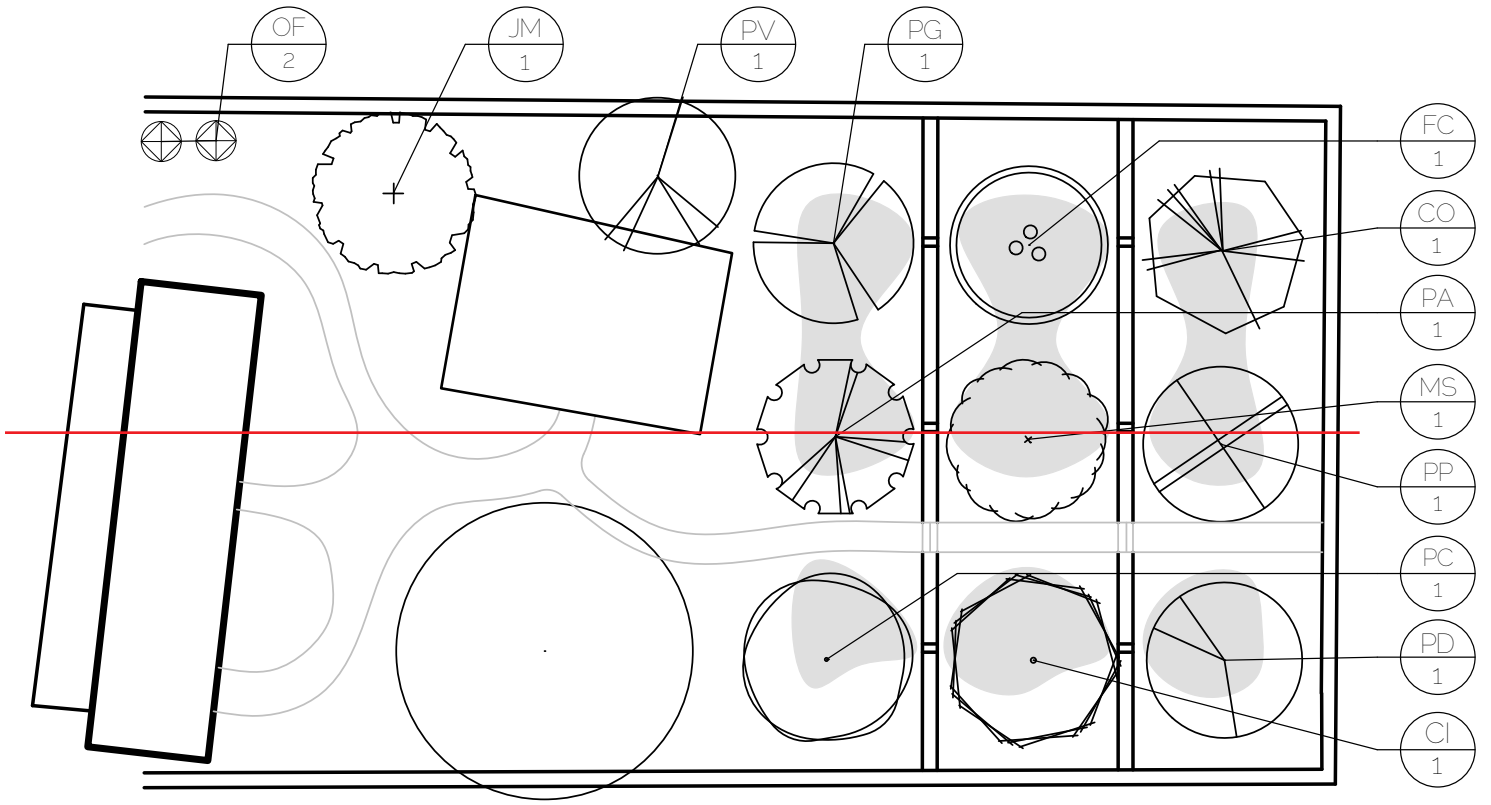
# HERITAGE ORCHARD




Efforts are being undertaken to install and cultivate heritage orchards throughout southern Arizona. One group, the Kino Heritage Tree Project, relies on root stock uncovered throughout Arizona and Sonora in backyards and other lost places, which are genetically descended from the original fruit trees brought to the New World by the Spanish padres. Heritage fruit crops are also being preserved on a more local level, obtained from local ranchers and farmers whose agricultural properties have been in the family for generations. The best way to ensure the survival of these heritage species that connect this area back to its cultural roots in Spain and the Old World is to plant these species far and wide to ensure their genetic diversity and cross-pollination.

The location of the Heritage Orchard was chosen specifically for its proximity to the Rojas House, listed on the National Register of Historic Places. It is a well-preserved example of a historic Sonoran row house, and efforts have been made to interpret what day-to-day life would have been like for its inhabitants, with recreated interiors and a soundtrack that gives a more realistic feeling to the entire tableau. The Heritage Orchard will serve to reinforce this corner of the park as a cultural interpretation area specifically dedicated towards Mexican settlers and their lifestyles. Many Sonoran homes had fruit trees in their backyard, and this small orchard attempts to capture the feeling of a small, self-sustaining orchard that might be found in the backyard of any home in Sonora.

The Heritage Orchard provides a more in-depth understanding of the Sonora settlement typology, adjacent to the Rojas House.




| SYMBOL | QTY. | BOTANICAL NAME | COMMON NAME | SIZE | FLOWERING |
|---|---|---|---|---|---|
| FC | 1 | FICUS CARICA V. 'RUBY' | 'RUBY' COMMON FIG | 15 GAL | |
| PG | 1 | PUNICA GRANATUM V. 'GARCIA CAMP' | GARCIA CAMP' POMEGRANATE | 15 GAL | |
| CO | 1 | CYDONIA OBLONGATA V. 'ARIVAIPA' | 'ARIVAIPA' QUINCE | 15 GAL | |
| PA | 1 | PRUNUS ARMENIACA V. 'DONNA ADELINA' | 'DONNA ADELINA' APRICOT | 15 GAL | |
| MS | 1 | MALUS SYLVESTRIS | APPLE | 15 GAL | |
| PP | 1 | PRUNUS PERSICA | PEACH | 15 GAL | |
| PC | 1 | PYRUS COMMUNIS | PEAR | 15 GAL | |
| PD | 1 | PRUNUS DOMESTICA | PLUM | 15 GAL | |
| CI | 1 | CARYA ILLNOINENSIS | PECAN | 15 GAL | |
| JM | 1 | JUGLANS MAJOR | WALNUT | 15 GAL | |
| PV | 1 | PROSOPIS VELUTINA | VELVET MESQUITE | 15 GAL | |
| OF | 2 | OPUNTIA FICUS INDICA | INDIAN FIG | 5 GAL | |


FC


MS


PG


PP


CO


PD


PA


CI

# SITE-WIDE STRATEGIES

In lieu of focusing on building any of the proposed elements of the site plan or focus areas, site-wide strategies have been proposed that can be applied to any development of the park at almost any stage and still be of benefit to the overall site. That being said, these strategies are best applied at the beginning of any project undertaking for a kind of framework that other site interventions can be placed upon. Any eventual intervention, whether or not part of the overall master plan, will ultimately benefit from the implementation of these strategies.

The three suggested site-wide strategies are stormwater management, volunteer engagement, and the implementation of a native planting palette; all are easily phased and easily implemented. These strategies also take advance of the opportunities presented to the park in recent years and in the near future, and can be initiated by a dedicated group of volunteers, and many of the materials needed are readily donated.

More generally, these strategies are not limited to the confines of the Tubac Presidio State Park, but can be implemented at other state and historic parks, or any public spaces or amenities that are struggling with similar issues regarding climate change, budget cuts, and a shift in the overall mission and relevance of the site. Potentially, some of these site-wide strategies could also be applicable on a smaller scale, inspiring visitors to the park to apply some of these strategies in their own homes and communities.

Curb cuts can gather runoff during a storm event.

# STORMWATER MANAGEMENT

To address certain challenges on the scale of the entire site, certain site-wide design strategies are proposed. One major challenge that is present on all aspects of the site is stormwater management. Tubac as a village has no municipal stormwater management, and as the State Park is located between the village of Tubac and the Santa Cruz River beyond, that means that the site receives a lot of water, both on-site and from the village streets above. Capturing that stormwater is an excellent opportunity to offset the costs of irrigation throughout the course of the year, while providing an educational opportunity for locals and visitors alike in the central tenets of rainwater harvesting and stormwater management. Capturing and managing will also mitigate many of the problems associated with major rain events, including erosion of the site grounds and archaeological remains, flooding (especially around building footprints), basal erosion of adobe structures, and so on.

There are several recommended strategies for the Tubac Presidio State Park that can help manage some of these issues. The first recommendation is establishing cisterns and other water capturing devices. Many of the main buildings on the property are already equipped with gutters and downspouts that could be easily modified to be directed into above-ground cisterns. Several buildings already have concrete pads at the base of the downspouts that would serve as a ready base for large cisterns. These would also be educational opportunities, and diagrammatic and interpretive signage would be to the added benefit to the visitor in the understanding of how these rainwater catchment systems work.

Another recommended strategy is curb cuts, especially in the planting beds in the parking lot. The parking lot and associated entry garden bear the brunt of the stormwater runoff from the village. Added to the impermeable asphalt paving, this creates a large amount of sheet flow that can only be absorbed by the drainage hole at the bottom of the parking lot, near the park entrance, where water tends to gather and pool during storms. The runoff from the streets and parking lot concentrates the surface contaminants at this single point and can possibly affect the quality of the water that runs off into the Santa Cruz River. By creating curb cuts at strategic points in the central planting beds, stormwater can be directed into the beds, contributing irrigation water to the plantings as well as increasing the time of concentration into the ground below. This runoff will help support an increased number of plantings on the parking islands and help redirect surface contaminates into areas of less concentration.

The last major strategy recommendation is grading and drainage. Currently, the site has been largely aligned with existing topography and the drainage creating by the sheet flow both from the village and from the site itself. Creating intentional drainage pathways, interspersed with a series of microbasins to slow the time of

Proposed water harvesting cisterns in the Water-wise Garden and the Presidio museum.

concentration and further infiltrate the water into the ground will direct water flows away from buildings, pathways, and other areas where a high flow of water is potentially problematic, and can also create an environment to support dense plantings throughout the site. One such of these areas is the Santa Cruz Interpretive Trail. This trail starts at the main storm drain in the parking lot and directs the water with a series of microbasins along the existing drainageway. This will break up the heavy flow of the water. Planting the microbasins with shade trees and more water demanding species will visually and metaphorically connect the site with the Santa Cruz River that lies just beyond the park's boundaries. Interpretation alongside the trail can provide explanations of the importance of the Santa Cruz River in the inhabitation and development of the Tubac presidio, as well as the importance of water overall in the upper Sonoran Desert habitat.

# VOLUNTEER ENGAGEMENT

One of the most important elements to the functioning of the Tubac Presidio State Park is the effort of volunteers. Although operated under the purview of the Arizona State Parks system, it currently only has one paid employee who is responsible for the day-to-day maintenance and management of the park, and the rest of the effort is undertaken by volunteers and paid for through donations and fundraising efforts.

Currently, a group of Master Gardener candidates from the University of Arizona, together with some local and seasonal volunteers from Tubac design and manage some of the smaller garden areas of the park. These areas that have already been designed and implemented have largely been left in place. Additional small areas that have been designated as specific small gardens have been proposed with the intention that they will be largely designed and managed by these volunteers. This flexibility gives the volunteers a sense of agency and keeps them involved with their volunteer efforts. These designated sites are accessible in location and manageable in size so that they can be small projects that are easy to design, fundraise for, and manage.

Another aspect to volunteer efforts is phasing and small, easily implementable projects. In addition to the Master Gardener candidates, the Tubac Presidio State Park receives occasional volunteer efforts over the course of a few days or weeks. Volunteer groups like Americorps volunteer can undertake infrastructural projects at the park, such as wall building, curb cuts, and major earthwork projects. These major undertakings should be considered as part of an overall site phasing and implementation strategy, and can set the stage for volunteer efforts over a smaller and more focused scale.

The last aspect of volunteer efforts is providing the opportunity for inter-agency cooperation among local, state and national parks in the area. Tumacacori National Monument is the closest park agency, located just a few miles south of the Tubac Presidio State Park. Under a National Park Service directive, maintenance staff can be deployed to other parks and agencies. The maintenance and interpretation staff from Tumacacori can be utilized for maintenance and upkeep needs, and can also be utilized for their expertise in other areas, such as adobe restoration and repair. There are a few adobe structures at the Tubac Presidio State Park that could be maintained in their current state with a little maintenance and intervention treatment. This also creates an opportunity for volunteers or for other educational purposes, teaching more people the intricacies of adobe maintenance and repair, while helping to preserve the adobe structures for the future and integrity of the Tubac Presidio State Park.

# NATIVE PLANTING PALETTE

When designing for the desert, the inclusion of native and near-native species in the overall planting design is very important. It is important because of the sensitivity and context of the surrounding Sonoran Desert, but it is important to plant species that are specifically adapted to the challenging environment. This is especially important near the wild desert environment, where the possibility of invasive species has the potential to outcompete desert natives and compromises the integrity of the original Sonoran Desert environment. This is especially most important near waterways, where invasive species can quickly spread up and down the course of the river, into new communities further and further away.

Native plantings are uniquely adapted, but can also be very beautiful, and when planted correctly, can provide a lush feeling for a much lower environmental cost, especially in water and soil amendments. It also creates an educational opportunity for visitors to the park. Though there are other places that highlight local, native, desert-adapted plants, this is the only location in this area with any possibility of native plant interpretation, especially of the unique desert plants of the Upper Sonoran Desert habitat. Native plantings create a new visitor amenity, and bring new types of visitors to the park while providing an excellent example of environmental stewardship.

Native plantings provide another interpretive benefit in the form of edible plants. Although specific heritage gardens have been proposed in the site plan for the park itself, the medicinal and nutritional benefits of some of these native desert plants can be highlighted through interpretive signage and programming, harvesting and education visitors on the benefits of these native desert plants, changing the way that they see the desert that surrounds them.

Plantings can be specifically chosen for their desired attributes; native plants that attract butterflies, bees, and other animals (like bats) can be grouped together to create a pollinator garden, which will give seasonal interest to the planted area. Many of the plantings proposed in this master plan are at their most beautiful during the peak visitor season between January and March, and provide a dramatic backdrop for the historic features of the park. Plantings can also be chosen that vary in their blooming season, creating a dynamic natural environment that always shows a different face to repeat visitors.

Last but not least, plants that are native to the Sonoran Desert and surrounding areas are completely unique to these parts of the desert, and also cannot be grown or experienced in other areas. Highlighting what makes this part of the desert unique and celebrating these species is a special experience in and of itself.

# CONCLUSION

# LIMITATIONS OF WORK

In conclusion, the stated goals and objectives in developing a master plan for the Tubac Presidio State Park were fulfilled, and though this project was limited in scope by the duration of the project period, it will provide a framework for any future infrastructure or interpretive undertakings at the park.

As per eventual implementation of the site plan, the park itself is limited by the lack of funding from the Arizona State Parks system, which affects all aspects of the operation by the park. It also limits the ability of the park to undertake major infrastructure projects or changes without having to raise funds for the specific project.

The park is currently run by volunteers, and there is a limit to the operations by the park as there is a possibility that the park may one day be reincorporated in to the Arizona State Parks system. This potential reincorporation presents a possible conflict between the values and undertakings of the current volunteer organization versus the priorities and mission of the State Parks as a whole. Any success by the park represents an increased potential of the Tubac Presidio State Park being brought back into the fold. Not succeeding, however, is not an option for the park, and this represents a significant challenge and delicate balance to be maintained by the leadership at the Tubac Presidio State Park.

The remains that have undergone an archaeological excavation are represented in the interpretive areas in the park;, however, further archaeological explorations have not be conducted since the initial excavation in 1974. Further excavations may reveal addition information that cannot be anticipated, and thus cannot be addressed in this proposal.

Furthermore, this proposed Master Plan anticipates the future incorporation of the private home located near the Presidio Drive being acquired by the Tubac Presidio State Park, as is their plan. However, until this happens, the master plan will not be able to be realized in its entirety.

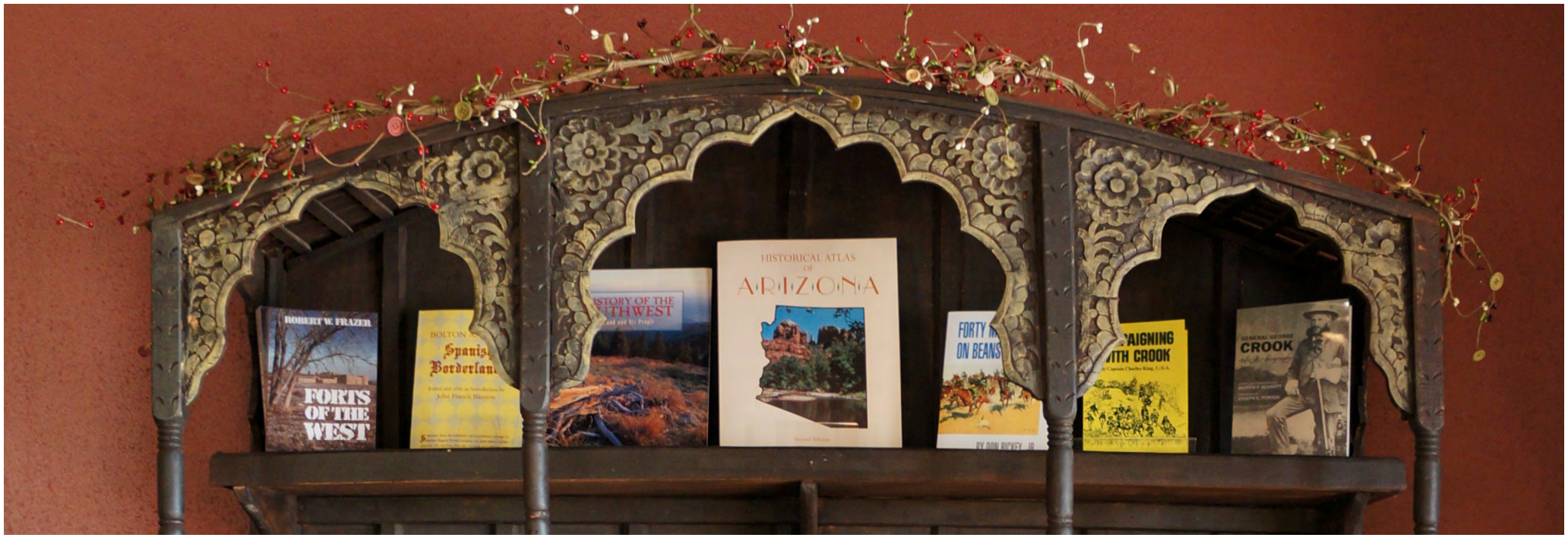
# RECOMMENDATIONS

The Tubac Presidio State Park has a unique set of challenges, although they may become more common in the future. Budget cuts have limited the park to relying on volunteers and fundraising for the day-to-day maintenance and operations of the park. This presents quite a challenge, to keep the volunteers interested and participating, and to keep funding coming consistently into the future. Without some sort of return of state funding, the park will continually have to be actively pursuing the activities necessary to keep the park open to the public.

Going forward, the park should attempt to secure a more consistent source of funding, perhaps by campaigning to be re-incorporated into the existing Arizona State Parks system. One enticement to reincorporation efforts would be for the park to diversify its income stream, through event and party rentals, special programming, or other endeavors. The gift shop is currently serving as an essential source of income generation; more quantity and diversity of items in the gift shop might help this undertaking, as well as advertising themselves to visitors to the village of Tubac and not just the State Park as a source of unique gift items. These undertakings aid in the overall goal of making the park self-sustaining and could serve as an enticement to the state park system.

Another recommended action is for the site to again welcome in the surrounding community. Although the park depends heavily on entry fees to pay for daily operations, this disadvantages local residents who used to consider the park to be a recreational amenity. Opening the park to the public on specific dates or times to be considered for recreation would be an important step to reconnecting the park with the surrounding community.

Diversifying the message of the park is the final recommendation. Currently a historic park designed towards the stewardship of the historic buildings and building remains, Tubac Presidio State Park is uniquely positioned to serve as a cultural interpreter and go-between for the greater Arizona-Sonora area, providing interpretive exhibits, programming, and organized trips that highlight the strong cultural and historic ties between the two sides of the border.



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Santa Cruz River (modern)
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Historic Santa Cruz River Photo
http://www.nationalgeographic.com/americannile/img/santa-cruz.gif

Case Studies

Fort Loudoun State Historic Area (from left)
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Rio Grande Botanic Garden (from left)
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Hubbell Trading Post (from left)
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Desert Botanical Garden (from left)
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Tohono Chul (middle)
https://upload.wikimedia.org/wikipedia/commons/f/fa/Moorish_Garden,_Desert_Living_Courtyard_at_Tohono_Chul,_Tucson.JPG

Canyon de Chelly (from left)
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Homolovi Ruins State Park (from left)
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Fruita Rural Historic District (from left)
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Tucson Presidio (from left)
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## Focus Area Photos

Agave Mound
Agave Americana:
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Archaeological Interpretation
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Hesperaloe parviflora:
https://upload.wikimedia.org/wikipedia/commons/e/eb/Zinnia_acerosa_form.jpg
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Community Center
Chrysothanmus naseoseus:
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All other images by author.